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NEONATAL OSTEOMYELITIS: A DISEASE DIFFERENT FROM OSTEOMYELITIS OF OLDER CHILDREN.[1]

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COMPARED with the widespread extent of minor staphylococcal infections in the newborn, stated by some authorities to be 10% to 15% of all maternity cases, neonatal osteomyelitis may seem a very rare condition; but it is nevertheless extremely important because of possible crippling sequelæ.

Neonatal osteomyelitis differs so much from acute hæmatogenous osteomyelitis of older children that it is virtually a different disease. Often the value of an article on osteomyelitis is greatly lessened by failure to differentiate between the two conditions.

[1] Read at the Jubilee Meeting of the Pædiatric Society of Victoria, Melbourne, March 11 to 15, 1957.

The purpose of this paper, which analyses 24 cases that occurred during the past five years at the Royal Children's Hospital, Melbourne, is to stress the differences between neonatal and acute hæmatogenous osteomyelitis, which are clinical, radiological, bacteriological, pathological and therapeutic.

The bones involved were as follows: femur, eight cases (upper end in three); maxilla, six; humerus, five; vertebra, three; clavicle, two; ulna, two; radius, one; tibia, one; talus, one; phalanx, one. Several bones were involved in three cases, and there was one death from the severe, pyæmic type of infection. This analysis shows the frequency with which the maxilla is involved, and indicates that suppurative arthritis of the hip joint is not synonymous with neonatal osteomyelitis, as seems to be generally believed. Only three patients of the series had involvement of the upper end of the femur and the hip joint. The possibility of primary involvement of a vertebra is also demonstrated by three cases. These were not discovered, or even thought of, until large retroperitoneal abscesses had developed.

The symptoms and signs with which the patients presented have often misled the clinicians, and thus the

best results have not been obtained because of failure in prompt diagnosis. The presenting features of the cases studied have therefore been listed, as follows: malaise and grizziness, failure to gain weight, feverishness, diarrhœa, pain when moved, localized œdema of varying extent, refusal to move limb, wrist drop, swelling of eyelid, conjunctivitis; purulent discharge from one nostril, thickened gum; abdominal mass.

In one case refusal to move the limb was interpreted as due to pain following injections; then œdema of the foot was noted. This was followed later by œdema of the vulva and the tissues around the hip. Finally the diagnosis was obvious when the limb became very hot and swollen and the overlying skin red and shiny. Another baby first presented with œdema of the hand, thought by his mother to be due to an insect bite. Soon it was obvious that osteomyelitis of the humerus was present. The swelling of the eyelid in another was thought to be due to an allergy.

The clinical course of the disease contrasts also with that of osteomyelitis in older children, in that there is often little or no toxæmia or pyrexia and little systemic disturbance, the patient continuing to take his feedings well.

Blood culture often gives negative results; perhaps this is only because the infants are examined too late. Usually a single bone is involved. Abscess formation and joint involvement are common. Sequestra are rare and are usually absorbed; therefore sinuses too are infrequent.

Radiological signs were present in all cases on the patient's admission to hospital. This is partly due to clinical delay and partly to an earlier onset of radiological signs. It is also in contrast with the situation in older children, in which in the acute phase radiology is of no help in diagnosis except in a negative way. A marked feature is the tremendous amount of irregularly shaped extracortical new bone formation, the extent of which is determined by the subperiosteal abscess which develops.

Bone destruction and widening of a joint space may also be obvious.

When the radiology of neonatal osteomyelitis is considered there is the problem of "double contour". This is most commonly seen in premature babies and is due to rapid laying down of subperiosteal bone; it is physiological, not pathological.

That, then, is the picture of the usual neonatal case. A minority of patients suffers from severe generalized infection with associated pyæmia, pneumonia and gastroenteritis. The only death in this series was in one such case, in which autopsy showed osteomyelitis in the clavicle, but there were abscesses in the myocardium, liver, spleen, lungs and brain.

The striking difference in the literature as to prognosis is resolved by the fact that there are two distinct forms of the disease. Sir John Fraser and others have stated that the disease was inevitably fatal, while many other writers have emphasized the low mortality. The answer, then, is that in the minority of cases the osteomyelitis is but an incident in the septicæmia, but in the majority of cases constitutional disturbance is not very great, and the condition might be called benign except for the unpleasant and crippling deformities which can result.

Bacteriology.

In nearly all the cases pus was obtained and cultivated, *Staphylococcus aureus* being grown on every occasion. There were no cases of streptococcal, *Bacterium coli* or pneumococcal infection, as might have been expected. All organisms were resistant to penicillin, 80% to streptomycin, and less than 10% to "Aureomycin".

In acute osteomyelitis, apart from neonatal cases, the causal staphylococcus is resistant to penicillin in a much lower percentage of cases. Dennison reported 2·8% of resistant organisms as compared with 87% in his series of cases of neonatal osteomyelitis.

Pathology.

An infected thrombus, often originating in the umbilicus, lodges in the vascular network of the metaphysis of a long bone; but as the newborn infant has very little cortical bone, it, together with the cancellous bone, is soon penetrated and pus escapes into the subperiosteal area and ruptures into the soft tissues. The periosteum in infants strips up easily, so that there is not much pus under pressure to cut off the blood supply of the shaft. Consequently an extensive involucrum is formed, but sequestration of dead bone is uncommon. Another reason for the latter may be the vascularity of the part, resulting in rapid infiltration and absorption of dead tissue.

The periosteum is also easily penetrated, pus escaping into the soft tissues; this saves the cortex from the destruction noticed in older children.

The epiphysis in the newborn is not the avascular barrier that it is in older children, and hence the infection passes more easily into the neighbouring joint. In addition, in the hip joint and elbow joint the disposition of the joint capsule on the metaphysis allows spread of infection directly into the joint without first passing through the epiphysis.

In connexion with the hip, it should be noted that during the first year of life all the head of the femur and a good deal of the neck is formed of cartilage. Radiographically, the epiphyseal centre for the femoral head is not seen until the seventh month. Phemister has shown that cartilage undergoes rapid solution in pus, and as in nearly all cases frank suppuration has occurred when the diagnosis is made, it is no wonder that complete destruction of the femoral head and pathological dislocation of the joint often occur.

Whatever the local manifestation, there are often associated paronychia, skin pustules or cord infection derived probably from one of the following sources: (i) prenatal intrauterine infection; (ii) infected *liquor amnii* after rupture of the membranes; (iii) maternal vaginal organisms; (iv) fingers and apparatus used in cleansing the baby's mouth after birth; (v) the mother's skin, nipples or milk (frank or subclinical abscess); (vi) the skin, nose or upper part of the respiratory tract of nurse or attendants, the last-named being by far the most important. In this series, *Staphylococcus aureus* was grown on culture from the umbilicus on several occasions, sometimes when it was clinically uninfected. There was one case of breast abscess in which, in order to assist decompression, breast feeding had been persisted with until nasal swelling from osteomyelitis of the maxilla became so severe that the child was unable to suck properly. It is incredible that such a barbarous and primitive form of therapy for breast abscess should still have its advocates.

Osteomyelitis of the Maxilla.

Osteomyelitis of the maxilla is worthy of separate comment, as it is infrequently diagnosed early and is relatively common (one-quarter of the cases in the present series and 36% in a series published from Glasgow by W. M. Dennison in 1955). In none of the cases recorded here was the diagnosis made before pus was exuding from sinuses inside the mouth.

These osteomyelitic processes of the jawbones are peculiar to the first year of life. There can be speculation as to the predilection for the maxilla. This may be due to its larger size and more rigid attachment to the skull, which favour more frequent reception of trauma, or to greater vascularity because of unerupted teeth.

Usually the first sign that something is amiss is that a swelling is seen in a cheek, the infraorbital area or an eyelid. Exophthalmos or conjunctivitis may cause the patient to be directed first to an ophthalmologist. The swelling may rapidly increase in size and pass through the stages of redness, abscess and fistula formation.

An alveolar swelling sometimes comes first, and may proceed to perforation and discharge. Premature eruption of teeth is a characteristic phenomenon. This acceleration

of eruption is probably due to increased vascularity in response to infection.

Pus discharging from one nostril and increased by pressure on the side of the nose may result in an incorrect diagnosis of dacryocystitis. Sometimes the infection spreads to the other side of the face, and the nose becomes occluded with œdema.

Prognosis in these cases must be guarded, as there may be loss of quite a number of the deciduous teeth, and later the permanent ones may be missing or misshapen. There may be deformity of the maxilla or nasal bones. However, fortunately, in most cases the deformity is minimal, even after persistent and recurrent intra-oral discharge and separation of small sequestra.

Treatment.

Successful treatment depends mainly on early diagnosis, adequate and suitable chemotherapy, and prevention of pathological dislocation or deformity.

Early diagnosis depends on the condition's being constantly suspected, and upon the appreciation of the significance of early signs, such as local œdema or refusal to move a limb.

In order to keep ahead of the drug-resisting characteristics of the infecting organism, the latest antibiotic should be used in adequate dosage and for sufficient time, three weeks being a minimum. Erythromycin, at present the antibiotic of choice, should be given at the earliest possible time while sensitivity tests on the organisms are being carried out. Every hour of delay is important in this disease. A tentative preliminary course of penicillin and streptomycin is quite useless.

Pus for cultural determination of the offending organism should be obtained without delay by aspiration. The subperiosteal area, soft tissue or joint should then be aspirated repeatedly, even daily, to minimize further tissue destruction by accumulated necrotizing bacterial toxins. The present common practice of allowing antibiotics alone to deal with soft-tissue abscesses is unsatisfactory. The pus in the joint should be replaced with erythromycin in glycerin, which gives a very high local concentration of the drug.

Affected limbs should be immobilized early in their optimum position. This is of supreme importance in the hip, in which pathological dislocation may be sometimes avoided if the limb is widely abducted in a Denis Browne splint, although, in spite of this precaution, if treatment is commenced too late, the infection may have involved and destroyed the head and neck of the femur. As the epiphysis does not appear radiologically until after the seventh month, this unfortunate event may often only be presumed at first.

Conclusion.

In conclusion, one might emphasize that Dillehunt's comment, written twenty years ago, that neonatal osteomyelitis is rarely accepted as a clinical entity and is therefore unrecognized and neglected in the early stage when treatment would do most to prevent unfortunate sequelæ, is as true now as it was then. It is perhaps now even more tragic, as we have at our command specific antibiotics which, given early, afford the only hope of achieving a favourable result.

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THE SUPERFICIAL INGUINAL POUCH AND THE UNDESCENDED TESTIS.[1]

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SINCE 1900 there have been many references in the surgical literature to the superficial inguinal space or pouch, but there have been few attempts to relate anatomical and clinical findings. This correlation is particularly important in the clinical differentiation of the various types of undescended testis.

The most detailed description of the normal anatomy and its variations is that of McGregor (1929), which has often been referred to in discussions of the clinical aspects.

Normal Anatomy.

The superficial fascia of the lower half of the anterior abdominal wall is composed of two layers. The more

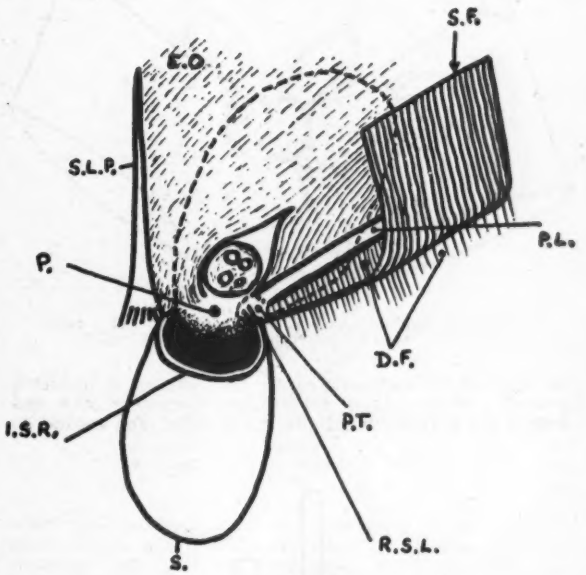

FIGURE I.

Diagram of external inguinal ring with Scarpa's fascia and inguino-scrotal ring (after Burton, 1957): E.O., external oblique; S.L.P., suspensory ligament of penis; S.F., Scarpa's fascia; P., pubic ramus; P.L., Poupart's ligament; D.F., deep fascia of the thigh; P.T., pubic tubercle; R.S.L., reflected part of Scarpa's ligament (McGregor); I.S.R., inguino-scrotal ring; S., scrotum. The outline of the superficial inguinal pouch is indicated by the interrupted line.

superficial, Camper's fascia, is fat-filled areolar tissue, and does not differ from the subcutaneous fat elsewhere in the body. It continues into the scrotum as the *tunica dartos*, which contains smooth muscle fibres.

The deeper layer, Scarpa's fascia, is a well-defined membranous sheet, which contains many elastic fibres and lies in close contact with the aponeurosis of the external oblique, separated from it by a loose areolar plane. In the mid-line this fascia is thickened to form the suspensory ligament of the penis. Lateral to this, the fibres of Scarpa's fascia arch across the front of the spermatic cord and pass into the scrotum to become Colles's fascia. Lateral to the pubic tubercle Scarpa's fascia is attached to the front of the pubis, and more laterally again fuses with the deep fascia of the thigh

[1] Read at the Jubilee Meeting of the Pædiatric Society of Victoria, Melbourne, March 11 to 15, 1957.

along the line of the groin fold and parallel to Poupart's ligament (Figure I). McGregor calls this "Scarpa's ligament"; it is continuous with the fascial fibres arching

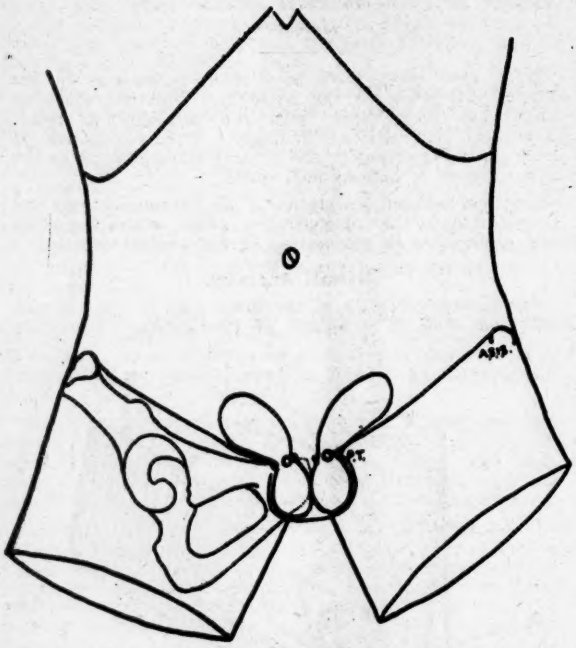

FIGURE II.
Superficial inguinal pouches and scrotum; P.T., pubic tubercle; A.S.I.S., anterior superior iliac spine.

in front of the spermatic cord. He describes a "reflected process" which passes behind the spermatic cord and enters the periosteum of the pubis below and medial to the pubic tubercle. The fibres of Scarpa's ligament in front of the spermatic cord form a fascial ring, which McGregor has called the "third inguinal ring", defining the following boundaries: anteriorly, the junction of Scarpa's and Colles's fasciæ; posteriorly, the pubis; medially, the suspensory ligament of the penis; laterally, Scarpa's ligament. It is one to one and a half inches from the medial to the lateral boundary, half to three-quarters of an inch from the anterior to the posterior margin, and circular or oval in shape. Burton (1957) calls this the "inguino-scrotal ring". The ring outlines the communication between two spaces in which a testis may be found—a lower space within the scrotum, and an upper space, the superficial inguinal pouch (synonym, pre-inguinal space).

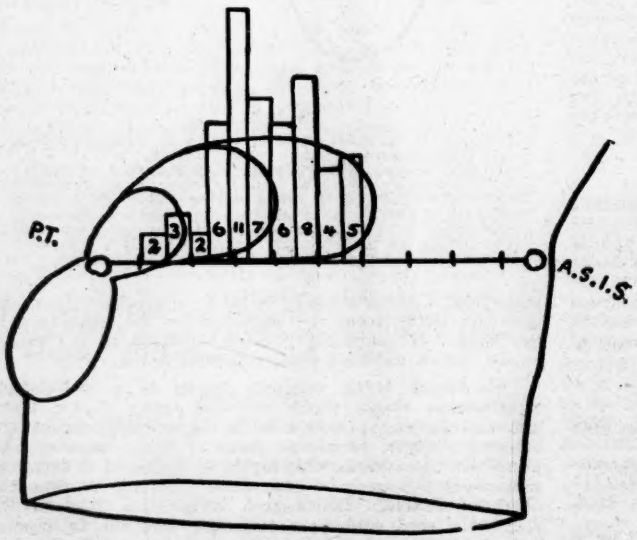

FIGURE III.
Diagrammatic representation of the range of sizes encountered in 54 clinical measurements of the superficial inguinal pouch. The largest, the smallest and the average size are indicated. P.T., pubic tubercle; A.S.I.S., anterior superior iliac spine.

The Superficial Inguinal Pouch.

The superficial inguinal pouch is an areolar space lying beneath Scarpa's fascia and in front of the external oblique aponeurosis. It is oval in outline and directed obliquely upward and laterally from the pubic tubercle (Figure II). This pouch has been called the "abdominal scrotum", and varies in size from subject to subject. Occasionally the pouch on one side is larger than on the other. The variations of size are shown in Figure III, which is based on 54 clinical measurements, and indicates the largest, smallest and average size encountered.

The wide range of mobility of the testis in childhood is well known, and the brisk cremasteric reflex will often retract the testis out of the scrotum. When its withdrawal is traced by palpation, it is found to have entered an extensive space situated within the fascia of the anterior abdominal wall—the superficial inguinal pouch. The margins of the pouch are impalpable, but can be delineated by moving the testicle within it, the range of movement of the testis being limited by the areolar margins.

Such a testis is described as a "retractile testis", and while this is a convenient clinical term for a variety of normal testes, it is scarcely justifiable, as all testes in pre-pubertal boys are of this type (Figure IV).

As the testis becomes larger and heavier during puberty and the cremasteric reflex becomes less brisk, the testis comes to reside permanently in the scrotum. The size of the testis prevents its passage into the superficial inguinal pouch through the inguino-scrotal ring, and with disuse the areolar pouch can no longer be demonstrated clinically. This constitutes the usual adult anatomy; but occasionally a fascial ring larger than the testis persists, with the same clinical findings as in childhood.

Clinical Significance.

The retractile testis has probably accounted for many of the successes claimed for hormone therapy in "undescended testes". Equally important is the possibility of misinterpretation of the clinical findings when a normal testis is palpable in the superficial inguinal pouch. Finger-tip manipulation will bring the testis into the scrotum, and if this manœuvre is omitted, the testis may be misdiagnosed as "undescended". This perhaps explains the incongruous figures for undescended testes reported in normal children, aged two to five years, attending Lady Gowrie Child Centres in the various Australian capital cities (Table I; Clements and MacPherson, 1945).

The normal anatomy is also open to misinterpretation when a testis is displaced from the scrotum by an examining finger (Figure V, *A*), which then encounters the inguino-scrotal ring at the junction of the scrotum with the superficial inguinal pouch. This ring can be mistaken for the external inguinal ring. As the testis will be readily palpable in the superficial inguinal pouch (Figure V, *B*), this will lead to the belief that the testis is palpable within the inguinal canal. The

exact findings can be clarified by seeking the pubic tubercle with the finger tip; a cough will throw into prominence the margins of the external inguinal ring, demonstrating that the examining finger is encircled by the fascial ring.

Undescended Testes.

There are two main categories of undescended testes—those arrested in the line of normal descent and those that have diverged from it. The latter are known as ectopic testes, and four types are described: superficial inguinal, perineal, femoral and penile.

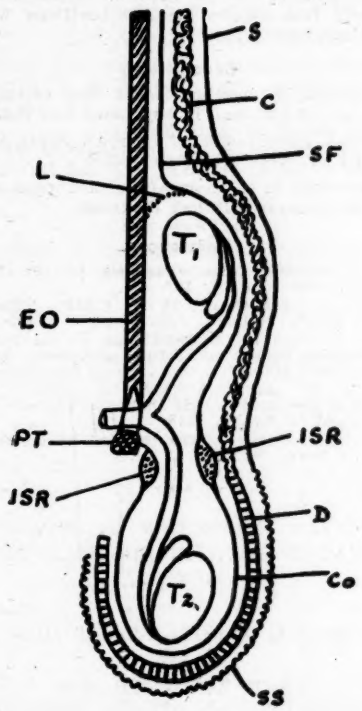

FIGURE IV.

The normal anatomy of the retractile testis: S., skin; C., Camper's fascia; S.F., Scarpa's fascia; L., areolar margin of superficial inguinal pouch; T1, testis in pouch; T2, testis in scrotum; E.O., external oblique aponeurosis; P.T., pubic tubercle; I.S.R., inguino-scrotal ring; D., *tunica dartos*; Co., Colles's fascia; S.S., scrotal skin.

Superficial Inguinal Ectopic Testis.

The superficial inguinal ectopic testis is the commonest variety, and the anatomical basis of this type is an abnormality in the attachment of Scarpa's fascia. The fascia in these cases is attached to the front of the pubis, forming a continuous sheet from the mid-line to the attachment of Scarpa's ligament. This forms the inferior boundary of a closed superficial inguinal pouch, and thus constitutes an anatomical barrier to the entry of the testis into the scrotum (see × in Figure VI). This abnormality can be detected clinically and demonstrated at operation, the anatomy being variously described as "atresia of the scrotum" (Burdick and Coley, 1926), a "fibrous hammock" (Browne, 1938), and "Scarpa's ligament" (McGregor).

The clinical characteristics of a superficial inguinal ectopic testis are as follows. The testis is of normal size, widely mobile within the pouch, and when it is manipulated towards the scrotum it reaches the level of the pubic tubercle and is then directed forwards by the concave upper surface of the obstruction, as indicated in Figure VI (b). Such a testis can never spontaneously descend into the scrotum.

There are two uncommon variants of this type of ectopic testis. The first is the "emergent-ectopic". The anatomy is as described, but in addition there is a large indirect inguinal hernia. Peritoneum lines the inner aspect of the superficial inguinal pouch and invests the testis and spermatic cord in a mesentery. The testis is permitted great mobility through a relaxed external inguinal ring and can thus pass backwards into the inguinal canal, where it is usually impalpable clinically (Figure VII). In the second variety there is the same basic obstruction to entry into the scrotum, but the attachment of Scarpa's fascia curves down over the front of the adductor muscles before regaining the line of the groin fold. The clinical result is that the testis, when manipulated downwards, "misses the neck of the scrotum" and is directed towards the perineum for one or two centimetres. This type is intermediate between the superficial inguinal ectopic and the perineal ectopic testis. (All types of ectopia have been attributed to variations in the attachments of Scarpa's fascia—McGregor, 1929.)

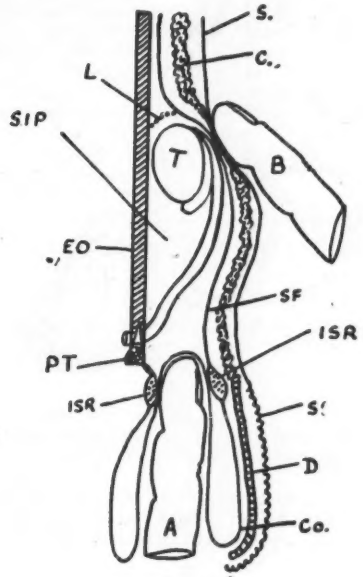

FIGURE V.

Retractile testis (T) palpated in the superficial inguinal pouch: A., finger invaginating scrotum; B., finger palpating testis in superficial inguinal pouch.

TABLE I.[1]

City.	Number of Children Examined.	Number of Undescended Testes Found.	Approximate Percentage.
Melbourne	102	41	40
Brisbane	105	29	28
Perth	109	17	16
Hobart	115	10	9
Sydney	102	7	7
Adelaide	127	3	2·5

[1] *After* Clements and MacPherson, 1945.

Differential Diagnosis.

Clinical diagnosis depends on the following points.

A normal retractile testis is distinguished from a superficial inguinal ectopic testis by the fact that there

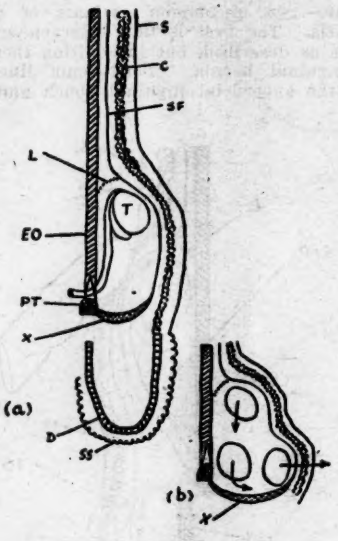

FIGURE VI.

Superficial inguinal ectopic testis: X, fascial obstruction; (b), see text.

is a free communication between the pouch and the scrotum in the former which is absent in the latter. Finger-tip manipulation will establish this point, for the

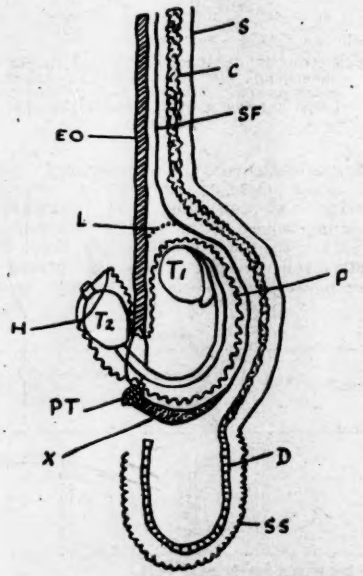

FIGURE VII.

The "emergent-ectopic" testis: H., hernial sac; P., peritoneum; T1, testis in superficial inguinal pouch; T2, testis in inguinal canal.

retractile testis can be brought to the bottom of the scrotum.

Testes arrested in the line of normal descent near the pubic tubercle, or those which can be manipulated to reach this point, have as their chief clinical feature a short spermatic cord. This shortness limits the movement of the testis into the scrotum and also towards the anterior superior iliac spine. No superficial inguinal pouch can be demonstrated, and there is no anatomical barrier to entry into the scrotum. In most cases, when maximal descent has been achieved by manipulation, the restraining action of the short cord, attached to the upper pole of the testis, can be palpated.

The "emergent-ectopic" testis is recognized by its wide mobility, the barrier preventing entry into the scrotum, and by the fact that the testis becomes impalpable when it passes backwards into the inguinal canal. Manipulation of the testis into all its possible positions will permit accurate diagnosis.

Conclusions.

1. The superficial inguinal pouch and retractile testes are usual, not exceptional, in boys aged less than 11 years.

2. Abnormal attachments of Scarpa's fascia account for the majority of cases of ectopic testes.

3. A knowledge of the normal and abnormal anatomy is essential for accurate clinical diagnosis.

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TESTICULAR INFARCTION IN INFANCY: ITS ASSOCIATION WITH IRREDUCIBLE INGUINAL HERNIA.[1]

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INGUINAL HERNIA in infancy and childhood is a very common disease. Incarceration, a frequent complication, creates a surgical emergency necessitating prompt treatment; strangulation of the blood supply to the intestines is the chief danger, but the blood supply to the testis may also be endangered. In this paper we wish to emphasize the incidence of infarction of the testis in infants with irreducible hernias, and to describe the clinical features and management of the condition.

At the Royal Children's Hospital a review was undertaken of the case records of all infants and children admitted with the diagnosis of testicular infarction, and of all children up to the age of two years admitted with irreducible inguinal hernias over the five-year period 1951 to 1955.

Irreducible hernias accounted for approximately one-third of all cases of testicular infarction in childhood in our series. There were 20 cases of torsion of the testis and eight of testicular infarction associated with irreducible inguinal hernia. All these eight infarctions caused by hernia occurred in children aged under two years. Over this period there were admitted 299 patients with inguinal hernia under the age of two years; 57 of the hernias were irreducible. Of these 57 cases, the testis was found to be infarcted in eight (Table I).

[1] Read at the Jubilee Meeting of the Paediatric Society of Victoria, Melbourne, March 11 to 15, 1957.

Definition.

We regarded a hernia as irreducible when the child was admitted to a surgical ward after attempts at manual reduction had failed.

Infarction of the testis was inferred only when the testis was found to be atrophied on review some months or years after operation for the irreducible hernia. At the time of operation on three children the testis was found to be blue and of doubtful viability, though at subsequent review the testis was normal. These were considered only threatened infarctions and were therefore excluded from the series.

Clinical Features.

History and Examination.

The infants presented with an inguino-scrotal swelling, and appeared to be in pain, and usually had vomited several times.

Infarction was suspected clinically before operation in some infants in whom the testicle on the side associated with the hernia felt very firm and larger in size than the opposite testicle.

Age Incidence.

The incidence of irreducibility and testicular infarction in relation to inguinal hernias in infancy is shown in Table I.

TABLE I.

Incidence of Inguinal Hernias in Infancy Related to Age, Irreducibility and Testicular Infarction for the Five-Year Period 1951 to 1955.

Age Group. (Months.)	Inguinal Hernias.	Irreducible Hernias.	Testicular Infarction.
0 to 3 ..	98	23	7
4 to 6 ..	44	5	0
7 to 12 ..	68	17	1
13 to 18 ..	68	9	0
19 to 24 ..	21	3	0
Total ..	299	57	8

Seven of the eight testicular infarctions associated with irreducible inguinal hernia occurred before the age of three months. The eighth infant was aged 18 months.

Location.

As with inguinal hernias in general, at least 60% of which are right-sided (Gross, 1953), both irreducible hernias and infarctions were predominantly right-sided (Table II).

TABLE II.

Hernia Complications in Relation to Side.

Complication.	Side of Hernia.	
	Right.	Left.
Irreducibility ..	48	9
Infarction ..	7	1

Duration of Irreducibility.

No relation was demonstrated between the duration of irreducibility and the incidence of infarction. The range of duration of irreducible hernias with testicular infarction was from five hours to 48 hours, while the range for all irreducible hernias was from two to 48 hours. The arithmetic mean in each group was approximately 13 hours. It is probable that the blood supply to the testis is impaired from an early stage in those instances in which infarction occurs.

Mode of Reduction.

Of the eight cases of testicular infarction, the associated hernia in five was reduced by taxis, and in three immediate operation was necessary.

Treatment.

At first, usually after the child had been given a sedative, reduction of the hernia was attempted by manual pressure. When this failed, in the early cases, taxis was repeated after elevation of the buttocks for up to one hour by gallows skin traction.

If the hernia was successfully reduced by either method, herniotomy was postponed usually for 48 hours. The œdema had by then subsided and the operation was technically less difficult.

Operative Findings.

The testis appeared "infarcted"—that is, dark blue or black—in every infant in whom the testis was later proved to be atrophic. In three of these infants it was noted that the testis alone was affected, the epididymis retaining its normal pink colour.

The infarcted testis was removed from only one patient.

The bowel in the hernia was viable in all infants in whom the testis was infarcted.

Post-Operative Course.

The post-operative course was satisfactory in all cases. In none did the testis become infected after it had been replaced. No hernias have recurred in any of these eight children.

The follow-up examination revealed that in three cases in which the testis was doubtfully viable at operation it was quite normal subsequently. These three were not included as infarctions in this series.

Discussion.

Mechanism of Infarction.

Strangulation of the blood supply to the testicle is presumed to occur at the point of constriction of the hernia. Compression of the testicular vessels and the vessels of the *vas deferens* by the mass of the hernia inside the unexpandable sheath-like coverings of the cord is thought to be the cause of the infarction.

It was found at operation on one infant that the hernia could not be reduced until the coverings of the cord were finally divided in the long axis of the cord at a constriction ring situated midway between the internal and external rings.

The escape of the epididymis in three cases may be explained on the basis of an additional extraabdominal blood supply to this organ, which we have observed as an arcade coursing distally in the cremaster muscle. Similar arcades have been demonstrated radiographically in adults by post-mortem injection (Harrison, 1949).

Methods of Prevention of Infarction.

In view of the danger of testicular infarction when an inguinal hernia becomes irreducible in the first three months of life, early treatment of a hernia is required. From our review it would appear that the age of three months is critical in this condition. After this age the danger of testicular infarction associated with an irreducible inguinal hernia is minimal.

Therefore the hernia must be controlled either by a truss or by operation as soon as it is diagnosed, often in the maternity hospital.

The only efficient truss for infants is an inflatable horseshoe rubber type (Figure I). Stocks of these appliances of various sizes should be available in pædiatric and maternity hospitals. The truss size is indicated by the circumference of the infant's abdomen across the iliac crests in inches. These trusses are available in sizes ranging from 10 to 19. The only contraindication to their use for inguinal hernia is an incompletely descended testis.

If an adequate truss is not available or is ineffective, then early operation is imperative. In any case, elective herniotomy should be carried out when the infant is thriving and well established.

If the hernia becomes irreducible, taxis in a type of gallows traction should be attempted. If this is successful, operation may be performed 48 hours later. If taxis is unsuccessful, then operative reduction is required immediately.

FIGURE I.
Photograph of infant fitted with inflatable rubber truss.

When the testis and epididymis are inspected, it should be remembered that relief of the incarcerated hernia may allow recovery of an apparently infarcted organ. A conservative attitude should therefore be adopted, orchidectomy being contraindicated except for the most obviously necrotic testis.

Summary.

1. Irreducible hernia caused one-third of all testicular infarctions in children in this series, the remainder resulting from torsion of the testis.

2. Testicular infarction due to irreducible hernias occurred almost exclusively in the first three months of life.

3. The site of constriction of the blood supply to both testis and hernia is suggested to be the inexpandable coverings of the spermatic cord.

4. Prompt operative repair of inguinal hernias in infants under the age of three months is recommended, with the use of a truss if operation must be postponed.

Acknowledgements.

It is a pleasure to acknowledge the inspiration and guidance afforded to us during this investigation by Mr. F. Douglas Stephens and Mr. J. G. Whitaker. Our thanks are also due to the members of the senior surgical staff at the Royal Children's Hospital for permission to review their patients.

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MINOR SURGICAL CONDITIONS OF THE ANUS AND PERINEUM.[1]

By F. DOUGLAS STEPHENS,
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THE reason for presenting some common minor conditions of the anus and perineum is that if they are overlooked they may lead to serious disabilities which create major problems in management.

Such conditions as fissure *in ano*, acute constipation and rectal prolapse are amongst the more common readily correctable diseases of the anus. *Pruritus vulvæ* and vulval adhesions are important common lesions in female infants and children.

Fissure in Ano.

The underlying condition of the child who cries on defæcation is frequently diagnosed as a fissure *in ano*.

In the child, the so-called fissures are simply mucosal splits which follow the passage of large-calibre motions. These splits are often multiple, and may occur at any point in the circumference of the anus; they heal very rapidly before the next motion occurs. With the split a small amount of blood may be visible on the stool, but in many instances pain is registered by the child without the appearance of blood. Under these circumstances it must be presumed that the anus is stretched to the limit without actual splitting of the mucosa. More often than not the anus is not split and, in fact, on many occasions after the first anal split the child expects pain and cries whether hurt or not. Under these circumstances the diagnosis of mucosal split or "fissure" is commonly though wrongly made. In fact, the fissure is rarely present and rarely visible and may in truth be called a "phantom fissure".

The whole problem of painful defæcation in children is related to the passage of hard, large-calibre motions. These split or stretch the mucosa of the anus, causing acute pain and sometimes hæmorrhage. The child, too young to complain, then resents defæcation and actively "holds back" the motion for long periods. The stools become even larger in calibre. Then what was an acute attack of constipation becomes a chronic condition by virtue of this vicious cycle — hard, large-calibre motions, painful defæcation, "holding back", hard motions and so on.

Symptoms which develop as a result of this painful cycle are general irritability, nervousness, anorexia and a fanatical fear of the pot. The child also develops a habit of defæcating in abnormal postures, such as standing up, lying down in bed, or even lying in a warm bath; these attitudes presumably permit the passage of hard, large stools with the least amount of pain.

The hard fæces, easily palpable on digital examination, become impacted in the distended rectum. The anus may even lie partly open from the pressure of the fæcal matter in the rectum above. As the constipation becomes worse, some mild abdominal distension ensues. This is partly caused by fæcal accumulations in the sigmoid colon and partly by gaseous expansion of the bowel.

Finally, the hard and impacted rectal contents become too large in calibre to be passed. At this stage a condition of paradoxical diarrhœa may ensue. Newly formed fæces, massaged by the peristalsis over the hard fæcal concretions, escape from the anus and cause a continuous day-and-night fæcal leakage. Often purgatives of many brands are tried, and the only effect is abdominal colic. In addition to this, enuresis may occur, adding to the child's misery.

The constipation of infancy and early childhood often starts with this painful defæcation and continues then

[1] Read at the Jubilee Meeting of the Pædiatric Society of Victoria, Melbourne, March 11 to 15, 1957.

through childhood, though often with less discomfort than at first.

It may be necessary to question the parents closely to establish the time of initiation of the painful symptom complex.

The acute attack of constipation which may have progressed to the chronic form may often be traced back to an illness, a change in routine, neglect of the bowels after operations, especially tonsillectomy or appendicectomy, or a change from the failing breast milk to bulky cow's milk mixtures.

It is obvious that the treatment of the fissure or mucosal split is a matter not of local treatment of the split in the anal canal, but of the underlying constipation. Procedures such as dilatation of the anal sphincter or injection of the mucosal split are both unnecessary and not without their dangers.

For some time now the régime of thorough prolonged emptying of the rectum and colon, the softening of the motions by emulsifying aperients, and regular training of the child to the pot has been recommended.

Emptying of the rectum and colon may be difficult at first, necessitating manual removal of the masses under anæsthesia. In most patients the content can be softened and partially evacuated by soap and water enemata. Because the over-distended gut empties only partially, a bowel washout of saline solution (not water) should follow the enema. The enema-bowel washout combination three times per week for three weeks, twice per week for two weeks, and once per week for several weeks usually suffices. This can be varied slightly according to the severity of the condition. The course can be administered in the out-patient department or in the home by the district nurse.

If spontaneous bowel actions do not occur after this course, more washouts will be necessary twice a week until the spontaneous actions restart.

Aperients are important to soften the motion. Most parents will have tried everything without success, but those same aperients will act as desired in much reduced dosage after thorough, prolonged bowel evacuation. Gradually the amount of these medicines can be decreased and they can be discontinued when bowel actions are regular.

The morning potting régime is important. This bowel training induces the habit which must be continued through childhood.

Relapses may occur during the subsequent months, since some degree of rectal dilatation persists for a long period. Further aperients or bowel washouts may be required to prevent such relapses.

These unhappy infants or children and their underlying physical and mental states can be completely and permanently cured by this régime, which restores to individuals their normal social status and behaviour, often denied them far too long by neglect or mishandling. If the underlying constipation is adequately handled, the whole problem of "fissure" so-called is eliminated in children.

Prolapse of the Rectum.

The cause of prolapse of the rectum is not known. It occurs sometimes as a result of excessive straining at stool, and quite frequently appears as a sequel of gastro-enteritis. The condition is encouraged by ill-fitting pots.

The rectal mucosa intussuscepts itself through the anus for a distance of approximately two to four centimetres, retracting inside after defæcation either spontaneously or by digital replacement. There is usually no pain or accompanying bleeding.

The prolapse of the mucosa can be diagnosed from a prolapsed polypus and an intussusception by digital palpation of the fornix created at the line of the anal valves by prolapse. In the child with the rectal polypus or intussusception there is no such fornix, but the polypus may be palpable inside the rectum.

The condition is self-limiting, though troublesome while it lasts. Simple non-operative methods of treatment result in cure in the vast majority of children.

Methods of management are, in their order of trial, as follows: (*a*) Adequate sedation in nervous children to avoid explosive defæcation. (*b*) Correction of constipation and softening of fæces. (*c*) Provision of a false top to the pot, so that the child does not sit "through" the pot. A piece of firm cardboard or three-ply wood with a central hole 10 centimetres in diameter corrects the tendency to fall through, at the same time giving support to the levator diaphragm. (*d*) Strapping of the buttocks. To effect this treatment satisfactorily, the strapping must be adequate, painless and easy. A square of strapping is applied almost to cover each buttock. The buttocks are then approximated. A piece of strapping one inch wide is placed across the natal cleft, adhering only to the square of strapping on either side. This is left on even during defæcation, after which the small strip is painlessly removed, the buttocks are cleaned and a new piece is reapplied. (*e*) Submucous injection of absolute alcohol. At the ano-rectal ring, three to five minims of absolute alcohol are injected as for piles. The reaction and scarring caused by this irritant usually prevent recurrence. This effective treatment is rarely necessary. (*f*) A subcutaneous circumanal stitch. A chromicized catgut stitch is inserted under the skin of the anus and tied anteriorly, so that the lumen of the anus is constricted to the size of the little finger. This is an effective method favoured by some surgeons, though it is not used at the Royal Children's Hospital.

Polypus of the Rectum.

The symptoms of polypus of the rectum, a moderately common condition in childhood, are painless fresh small hæmorrhages with each bowel action and, more rarely, painful prolapse of the polypus on its stalk through the anal canal. The polypus may be seen in the prolapsed state, or sometimes felt on digital examination of the rectum. Proctoscopic and sigmoidoscopic examination may be necessary to assess the presence of a polypus. By grasping the stalk with alligator forceps, the polypus, in company with the sigmoidoscope sheath, can usually be withdrawn back through the anus, where the stalk can be transfixed and ligated. If the stalk is too short to prolapse in this way, it can be coagulated with the diathermy electrode, a rubber-covered pair of alligator forceps being used through the ordinary sigmoidoscope.

If the polypus prolapses spontaneously, the stalk should be grasped and tied off with thread before being replaced inside the rectum.

The Post-Anal Dimple.

The post-anal dimple is a very common depression of the skin overlying the coccyx. In some cases the pit is shallow and in others it is deep and narrow. In the great majority the dimple gradually disappears as growth of the child progresses. Few dimples persist into adult life.

These pits, as Denis Browne has observed, resemble in ætiology the temporary dimples over the knuckles in babies. Such dimples are formed *in utero* at the sites where the skin is stretched over bony prominences. After birth, when baby fat develops, these points of adherence remain as dimples. As with the dimples on the back of the hand, most of the coccygeal dimples disappear as childhood advances.

These post-anal dimples of infancy are not related to pilonidal sinuses.

Treatment, apart from keeping the dimple clean, is unnecessary.

Not all dimples in this region are insignificant. Rarely, a terminal spinal meningocele or dermoid can create a dimple near this site. A deeper mucosa-lined post-anal pit associated with sacral anomalies may be a persistence of the early embryological neurenteric canal.

Piles.

Bleeding in children from piles is uncommon. Some babies pass small fresh blood streaks on their stools for many months and no obvious cause is found. This is insignificant and terminates spontaneously. I have wondered whether these small painless hæmorrhages are caused by piles.

I have known only one instance of serious hæmorrhage from definite piles requiring treatment; the patient was a child in whom large anomalous venous channels were present within the abdomen.

Vaginal Conditions.

Adherent Labia Minora.

The so-called adherent *labia minora* cause much confusion in diagnosis. This is quite a common condition, causing symptoms of enuresis and discomfort on micturition. Often the condition is discovered on routine examination.

There is a very delicate mid-line adherence between the *labia minora*, partially closing in the introitus and the lower opening of the urethra as far anteriorly as the clitoris. One or more small orifices for the exit of the urine and the cervical secretions occur under the clitoris or along the lines of fusion.

This condition is frequently diagnosed as congenital absence of the vagina, a misapprehension which causes much unnecessary anxiety in the family.

The management of this condition consists, in babies, of digital separation of the labia without anæsthesia. This can be done by the parting of the labia by lateral pressure with the thumbs on the *labia minora*. A fine faint line of hæmorrhage occurs along the line of cleavage. In the older children it is necessary to separate the labia under general anæsthesia.

There is a strong tendency for the adhesions to recur. The mother is shown how to separate the labia by gently resting one finger on the fourchette in the introitus. This is done with the finger coated in "Vaseline" three times per week for a month, then twice a week for a month, then once a week for a month, then once a fortnight, and so on. The doctor should reexamine the child at intervals to ensure that the adhesions are not recurring, especially posteriorly at the fourchette.

Vaginal Discharge.

The chief symptom associated with vaginal discharge is vulval irritation. The discharge itself may in some cases be the only complaint.

A very offensive profuse discharge indicates a retained foreign body. For example, straw from the haystack may lodge in the vagina. Small objects may be successfully irrigated away by the use of a soft rubber catheter. Failing this, instrumental removal through a miniature vaginoscope under anæsthesia is necessary.

Common causes of non-offensive yellowish discharge in children are as follows.

Hormonal Causes.—A profuse mucous or yellowish discharge may occur for weeks or months after birth. The maternal hormones prior to birth act on the fœtal endocrine system, which in turn stimulates the vaginal and uterine secretions. The condition is self-limiting and is physiological rather than pathological. In older fat children the secretions are often in excess of normal. These secretions are irritant to the vulval skin. Endocrine therapy is only occasionally successful; twice-daily baths and Condy's fluid irrigation of the vagina will remove the nocturnal and diurnal accumulations. For simplicity, the common household jug is used to project the Condy's fluid into the introitus from a height of 18 inches after the morning and evening baths. This is the most effective means of alleviating the embarrassment of the vulval irritation.

Vaginal Infections.—Gonococcal infections in children are extremely rare and will not be discussed in this paper. Other non-specific infections are slightly more common and can usually be entirely cleared up with local irrigations as already described. Failing this, the taking of a vaginal swab, culture and bacterial sensitivity tests will indicate the chemotherapy required.

Foreign Material in the Introitus and Frictional Dermatitis or "Gym" Disease.—This complaint appears in the early school years, when the child gains confidence on the "bar". It is arrested by prevention of the trauma, the use of cotton underpants, baths, and an ointment.

Summary.

Common minor anomalies of infants and children are discussed.

Fissure of the anus in children is very different from that of adults. It is a mucosal split which heals very quickly and is caused by large-calibre stools. Treatment is not directed to the fissure but to the underlying condition of constipation.

Idiopathic rectal prolapse, a common condition in young children, is usually self-limiting in its duration. Conservative measures usually terminate the tendency to prolapse, and only rarely are operative procedures required.

Other problems, such as rectal polypus, post-anal dimple and piles are described.

Adherent *labia minora* create more problems by being wrongly diagnosed as congenital absence of the vagina than by their treatment, which is simple and effective.

Vaginal discharge in small girls is discussed, particularly in regard to ætiology and treatment.

MENINGITIS IN MELBOURNE DUE TO E.C.H.O. VIRUS: PART I. CLINICAL ASPECTS.[1]

By J. A. FORBES,
Fairfield Hospital, Victoria.

THE majority of patients with virus meningitis or meningo-encephalitis[2] admitted to Fairfield Hospital over the last few years have been regarded as suffering from non-paralytic poliomyelitis (Forbes, 1955; Thayer and Ferris, 1955).

In July and August, 1956, a change in the relative occurrence of paralytic and non-paralytic cases indicated that a virus other than poliomyelitis virus was probably concerned. This change was confirmed by the types of virus isolated from these patients by the laboratory (Ferris and Lewis, 1958). This comparison is facilitated by the fact that almost all patients with paralytic poliomyelitis and those suspected of having poliomyelitis in Melbourne are admitted to Fairfield Hospital.

The diagnosis of so-called virus meningitis referable to the cases described here was made only when the signs of meningeal irritation were confirmed by the presence of leucocytes in the cerebro-spinal fluid after the exclusion of mumps, chickenpox, Coxsackie virus, herpes, leptospirosis, etc.

Interest in this epidemic was accentuated by its concurrence with the introduction of Salk vaccination.

Epidemiology.

In the four years preceding July, 1956, the number of patients with virus meningitis or meningo-encephalitis without paralysis admitted to this hospital each month has generally fluctuated with that of paralytic poliomyelitis (see graph, Figure I).

In August, 1956, the number of cases of paralytic poliomyelitis had fallen, whereas cases of so-called virus

[1] This communication formed the basis of a paper read at the Jubilee Meeting of the Pædiatric Society of Victoria, Melbourne, March 11 to 15, 1957.

[2] The terms meningitis and meningo-encephalitis are regarded as synonyms.

meningitis without paralysis were increasing. Previously, the admission rates for paralytic and non-paralytic cases had been roughly equal, so that it was apparent that the diagnosis of non-paralytic poliomyelitis was probably no longer correct. The immediate clinical diagnosis of probable poliomyelitis was accordingly changed to virus meningitis.

The decline in paralytic poliomyelitis continued in the succeeding six months, during which time virus meningitis increased (Figure II). In this period, only nine patients with paralytic poliomyelitis were admitted to the hospital, in contrast to 138 patients with virus meningitis. The graph in Figure II shows an epidemic of virus meningitis occurring independently of paralytic poliomyelitis. A total number of 263 patients with virus meningitis were admitted to hospital during the epidemic, which had subsided by August, 1957.

This change is reflected in the types of virus isolated from the fæces of these patients. Whereas prior to August, 1956, poliomyelitis virus predominated amongst the viruses isolated from patients with non-paralytic virus meningitis, corresponding also to the number of admissions for paralytic poliomyelitis, during the succeeding months there was a sharp rise in the number of isolations of E.C.H.O. virus from these patients associated with an absence of poliomyelitis virus. E.C.H.O. virus type 4 was the predominant strain isolated (Ferris and Lewis, 1958).

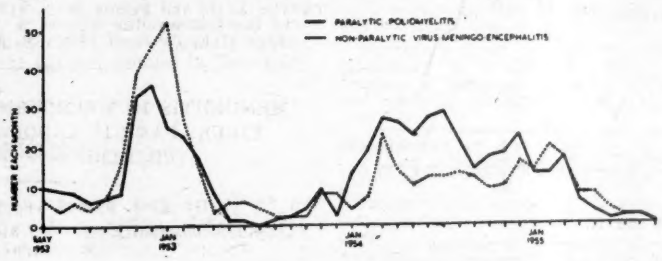

FIGURE I.

Graphs showing the number of patients with paralytic poliomyelitis and non-paralytic virus meningitis admitted each month to Fairfield Hospital from May, 1952, until September, 1955.

The correspondence of these curves suggests that an E.C.H.O. virus is the ætiological agent in this epidemic (Figure II), and this was further confirmed by the isolation of virus from the cerebro-spinal fluid in a number of cases.

Clinical Details.

The patients were mainly aged under 36 years, males narrowly predominating. Figure III shows the age distribution.

On their admission to hospital, the duration of illness of these patients almost always varied between one and seven days, but was usually about four or five days. The onset was characterized by malaise, headache and fever, which became progressively worse over succeeding days and was often associated with shivers, nausea and vomiting, sore throat, muscle pains (particularly backache), and ultimately neck and back stiffness. Photophobia was also present in some cases, and in a few mild transient diplopia.

At the time of admission to hospital, the patients usually had a moderate fever with an axillary temperature of about 100° or 101° F., occasionally higher, a flushed, rather anxious appearance, and at times obvious photophobia. Varying degrees of neck and back stiffness were present in all cases, and occasionally head retraction in children. Granular lymphoid hyperplasia of the pharyngeal wall with reddening of the mucosa was a feature in many cases, and muscle tenderness was occasionally observed. Mild generalized lymph node enlargement was not uncommon, and the spleen was palpable in occasional cases. Mild transient limb weakness was complained of and observed in a few cases in the acute stage, but no permanent weakness or wasting occurred in any of the patients. Many of these weaknesses could have been ascribed to the presence of malaise and lack of cooperation. A transient erythematous macular rash appeared on the trunks of a few patients, and a rubelliform rash was observed in two cases.

In the more severe cases there was evidence of mild encephalitis, with some disturbance of perspective and disproportionate anxiety. In the majority of cases the signs and symptoms of meningitis were more pronounced than those of encephalitis.

The presence of meningitis was confirmed in all cases by the cerebro-spinal fluid changes, which resembled those seen in poliomyelitis. The cerebro-spinal fluid usually contained between 20 and 500 leucocytes per cubic millimetre, and in occasional cases figures as high as 1200 were found. The cells consisted of both polymorphs and lymphocytes, the proportion of polymorphs usually being higher in the early stages of the disease. In some cases over 90% of the cells present were polymorphs. The protein level was usually moderately raised, even to 100 milligrammes per 100 cubic centimetres, the chloride concentration, usually about normal, was occasionally reduced to 710 milligrammes per 100 cubic centimetres, whilst the sugar concentration remained normal.

The early clinical picture showed some variation from that seen in poliomyelitis, in that the disease was somewhat less acute, the duration of the illness prior to admission to hospital being longer than that commonly observed in the major illness of poliomyelitis. The intensity of the headache was a feature of the illness, but the main difference was the frequency of evidence of associated upper respiratory tract infection in contrast to poliomyelitis, in which this is uncommon.

Course of the Disease.

In most cases the headache and rise in temperature had subsided by the fourth day after admission to hospital, and very often the neck stiffness had disappeared before this. A few patients had become almost symptom-free after two days, and at the other end of the scale in a few of the more severe cases the signs and symptoms, particularly headache, persisted for up to 10 days. It has been reported to us that a few of these patients had recurrent severe headache after discharge from hospital. The immediate prognosis was good.

Treatment.

Rest in bed and symptomatic treatment with aspirin and codeine mixtures for muscle pain and headache formed the main treatment. Some patients required repeated reassurance to allay their anxiety over the first few days. Observation for muscle weakness to detect cases of paralytic poliomyelitis amongst the group was a feature of management.

Infectivity.

The condition appeared to be highly infective, in view of the fact that several members of 18 households were admitted to hospital with the disease, and people in the neighbourhood of patients were frequently reported to have suffered transient but severe headaches.

By analogy with poliomyelitis and from the frequency of isolation of virus from the fæces of these patients it is presumed that spread of the disease is excremental.

Incubation Period.

It was not possible to discern the incubation period with certainty, but in three families two siblings were admitted with the condition; there was an interval of 10 to 14 days between contact and the onset of symptoms in the second

case, during which time there had been no contact between the siblings. In most cases it was usual for members of a family to develop symptoms simultaneously or at intervals of only a few days.

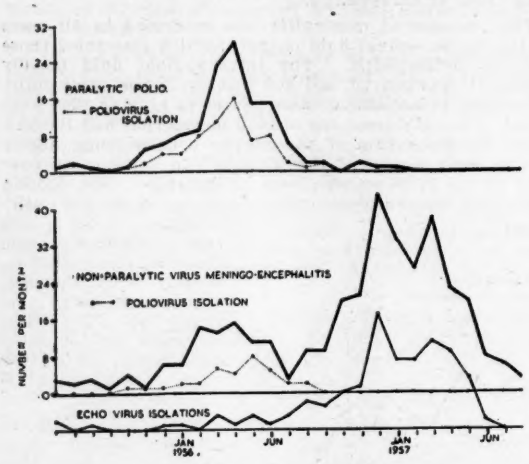

FIGURE II.

Graphs showing the monthly admission of patients with paralytic poliomyelitis and non-paralytic virus meningitis in relation to the types of virus isolated, from June, 1955, until August, 1957.

Discussion.

The clinical course of the illness in this E.C.H.O. virus type 4 epidemic has been similar to that described by Karzon *et alii* (1956) relating to type 6 infections.

Although only patients with evidence of meningitis are included here, the varying severity of the meningitis associated with other symptoms and signs, such as

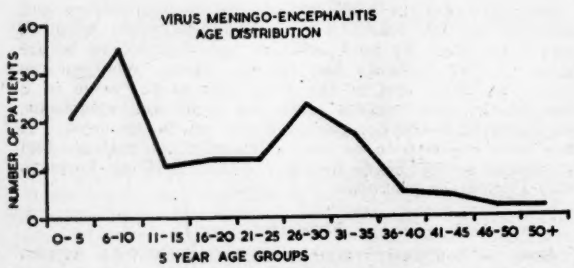

FIGURE III.

Graph showing age distribution of the initial 133 cases described in text.

generalized lymphoid hyperplasia and muscle pain, in conjunction with repeated descriptions of contact with milder "influenza-like" illnesses and the isolation of E.C.H.O. virus from the stools of such patients and also from contacts without symptoms, suggest that, like poliomyelitis, the infection may occur in a subclinical form and with varying degrees of severity.

Long-range effects as a result of brain damage as seen in *encephalitis lethargica* seem unlikely following this virus meningitis, in view of the general absence of evidence of severe brain damage and the uniformly good prognosis.

The epidemic draws attention to possible fallacies in the assessment of the efficacy of the Salk vaccine, if cases of non-paralytic virus meningitis are assumed to be caused by poliomyelitis virus, particularly in the absence of paralytic poliomyelitis.

Summary.

An epidemic of meningitis due to E.C.H.O. virus type 4 is described.

Two hundred and sixty-three patients were admitted to Fairfield Hospital over a period of twelve months when poliomyelitis was almost absent from the community.

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MENINGITIS IN MELBOURNE DUE TO E.C.H.O. VIRUS: PART II. LABORATORY ASPECTS (PRELIMINARY REPORT).[1]

By A. A. FERRIS AND F. A. LEWIS,

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AT Fairfield Hospital, over the past four years, collection of stool specimens for inoculation into tissue cultures has been a routine procedure in the investigation of patients admitted with suspected poliomyelitis or aseptic meningitis. Many E.C.H.O. viruses, as well as poliomyelitis viruses, have been isolated from these patients.

It was noted that isolation of E.C.H.O. viruses was a discontinuous, non-seasonal occurrence, which appeared to bear no relationship to the current incidence of poliomyelitis. There were periods of time, usually two or three months, during which isolations of E.C.H.O. viruses were frequent. These alternated irregularly with periods during which no E.C.H.O. viruses were found. It was usual to find neutralizing antibodies in the serum of patients who yielded E.C.H.O. viruses in stool specimens. The majority of these patients had symptoms and signs of meningeal irritation with pleocytosis in the cerebro-spinal fluid, and it appeared, presumptively, that E.C.H.O. viruses were the ætiological agents.

The period August, 1956, to April, 1957, inclusive, marked an epidemic, still current at the present time,[2] but apparently subsiding, of a non-paralytic illness diagnosed as "virus meningitis" and described in Part I of this paper (Forbes, 1958). At this time paralytic poliomyelitis was virtually non-existent in the community, and there was no increase in conditions such as mumps, infective polyneuritis, glandular fever or other infections which might conceivably have produced the clinical syndrome seen in these patients. Of 217 patients studied, 57% have yielded E.C.H.O. viruses from stool specimens. In addition, single cerebro-spinal fluid specimens from 36 patients were examined by culture, and seven specimens yielded the same virus type as had been isolated from stools.

It was soon apparent that the virus strains obtained from this epidemic were not an homogeneous lot, but fell into at least two types, because some strains produced high virus titres and rapid cytopathogenic change in tissue culture, whereas others, the majority, gave significantly lower titres and slower cytopathogenic change. It has been possible to confirm this observation only quite recently, when we obtained, through the courtesy of the Commonwealth Serum Laboratories, the 14 American E.C.H.O. type strains and prepared suitable neutralizing antisera from them in rabbits.

[1] This work was done with the aid of a grant from the National Health and Medical Research Council.

[2] June, 1957.

The majority of the 124 virus strains obtained from different patients in this epidemic have now been typed. Over the early epidemic period, from August to November, 1956, inclusive (see Forbes, 1958, Figure II), all strains were untypable—i.e., there were no types 1 to 14. It has yet to be proven, but is considered to be highly probable, that these strains are an homogeneous lot. Attempts are now being made to determine whether the strains fall into the more recently described E.C.H.O. types 15 to 19, or whether they are still another serological type. Over the epidemic period with high case incidence, commencing in December, 1956, most strains are E.C.H.O. type 4, but a few of the untypable strains still appear.

Much work remains to be done, and a report in greater detail will be furnished at a later date. Type 4 has not yet been identified amongst E.C.H.O. strains isolated prior to this epidemic, and survey sera, collected in earlier years, appear to be lacking in type 4 antibody. This evidence suggests that E.C.H.O. type 4 virus is new to the Victorian community. The possibility arises that this strain may have been introduced in the great influx of overseas visitors present in Melbourne for the Olympic Games in November, 1956.

Reviews.

Modern Trends in Neurology (Second Series). Edited by Denis Williams, C.B.E., M.D., D.Sc., F.R.C.P.; 1957. London: Butterworth and Company (Publishers) Limited. 9½" × 6¼", pp. 388, with 79 illustrations. Price: £5.

THIS book, which is a companion volume to the first series, consists essentially of a number of essays written by contributors particularly versed in their subjects. The whole book reflects the personality of its editor, Denis Williams, in that almost every section is crisp, informative, to the point and eminently readable.

Due space is given to the basic sciences, in particular to recent advances in the anatomy of the nervous system, metabolic disturbances affecting the cerebrum, recent notions on the cerebro-spinal fluid and raised intracranial pressure, the pathology of atheroma and the chemistry of myelin.

Whereas the first volume contained accounts of electroencephalography and neuroradiology, this volume summarizes the recently expanding technique of electromyography. The clinical sections deal with occlusion of the internal carotid arteries, intracranial angiomata, spontaneous subarachnoid hæmorrhage, encephalitis, aural vertigo, primary diseases of the muscles, sarcoidosis of the nervous system, diabetic amyotrophy, developmental anomalies in the region of the *foramen magnum*, cervical spondylosis, mid-brain deformation due to expanding intracranial lesions, the neurosurgical treatment of psychiatric disorders and the medical treatment of epilepsy and temporal lobe epilepsy in particular. So much did we enjoy reviewing this book that it seems churlish to offer any criticism. However, we would like to see a discussion of basilar artery insufficiency and a review of the place of anticoagulant therapy in intracerebral vascular thrombosis. In the basic science sections, perhaps some account of the reticular formation would have been timely. These are only minor criticisms of faults, probably enforced by limited space as this volume (349 pages) is only slightly over half the size of its predecessor. It is a book that can be recommended to every physician and neurologist.

Unlike many of the sketchy reviews which skim the whole field, this book retains its value over the years, as each essay dips deeply into the subject and in years to come will still be referred to. In fact the first series, although six years old, is still useful as a reference text.

Chemical Methods in Clinical Medicine: Their Application and Interpretation with Techniques of Simple Tests. By G. A. Harrison, B.A., M.D., B.Ch. (Cantab.), M.R.C.S. (Eng.), F.R.C.P. (Lond.), F.R.I.C.; Fourth Edition; 1957. London: J. and A. Churchill, Limited. 9" × 6", pp. 680, with 163 illustrations. Price: 65s. (English).

TEN years have elapsed since the appearance of the previous edition of this well-known book. In spite of the many changes it has undergone in the fourth edition, its size and general form have not been materially altered. This result has been obtained by judicious editing and pruning, such as the omission of a number of alternative methods, which are now redundant, and of references at the ends of chapters.

The chapter on apparatus has been greatly enlarged. It now includes in its new material descriptions of methods of flame photometry, paper chromatography and paper electrophoresis. The consideration of electrophoresis is limited to the preparation and qualitative examination of the paper strips. This limitation greatly restricts the usefulness of the method. It is no doubt due to the author's continual endeavour to avoid the introduction of complicated tests. Such an endeavour is admirable in a book approaching chemical tests from the clinical point of view. It may be looked at askance by a younger generation of biochemists with a specialized laboratory background.

The author retains his critical and conservative attitude to the clinical usefulness of chemical tests. After a comprehensive presentation of liver function tests, for example, he comes to the sweeping conclusion that all of them, except examination of serum, urine and fæces for bile pigments and their derivatives, could probably be scrapped with advantage. His dismissal of determinations of urinary steroids may also be regarded as unduly summary.

Harrison's book is essential to workers in a hospital laboratory. It is one to which they will find themselves frequently referring both for information on methods and discussion of the significance of many tests.

Introduction to Biostatistics. By Huldah Bancroft, Ph.D.; 1957. New York: Paul B. Hoeber. 9¾" × 6", pp. 224, with 37 illustrations. Price: $5.75.

THERE is still considerable variation in the content of the undergraduate courses in medical statistics, very little being taught in any Australian medical school. In some of the American schools, however, 48 hours or more may be spent on biostatistics, and the present book has grown out of the author's experience in teaching biostatistics to medical students. The book is to serve as a general introduction to the theory and as a computing manual. No mathematical methods beyond the most elementary are used—for example, the mean of the binomial is not calculated in its general form. Many will find this a relief. The computing techniques are shown clearly. A number of medical problems are treated by the aid of statistical methods, and all the set examples are medical. We believe that this procedure can be carried too far, and it seems that some genito-urinary and gynæcological examples might well have been replaced by emotionally neutral examples drawn perhaps from hæmatology. A few criticisms may be made: the relationship between m_p and q_p can be demonstrated to students; the calculation of the expectation of life is explained in a very vague manner in Chapter 16, although the explanation given in the following chapter is somewhat better; the variation in body temperature in degrees Fahrenheit expressed as a percentage of the mean is an unhappy example; the means at the top of page 178 have become interchanged. At an elementary and non-mathematical level, this introduction covers the usual topics of graphical representation, tabulation, computations such as those of the mean and standard deviates, vital statistics, including life tables, and significance tests. It is one of the few elementary texts which do not make gross blunders or mistake some specialty for the whole of statistics. The book is recommended for a first reading in medical statistics.

An Atlas of the Commoner Skin Diseases: With 153 Plates Reproduced by Direct Colour Photography from the Living Subject. By Henry C. G. Semon, M.A., D.M. (Oxon.), F.R.C.P. (Lond.); revised with the collaboration of Harold T. H. Wilson, M.A., M.D. (Cantab.), M.R.C.P., D.T.M.; Fifth Edition; 1957. Bristol: John Wright and Sons, Limited. 9¾" × 7¾", pp. 384. Price: 105s.

DR. H. T. H. WILSON, the successor of Dr. H. C. Semon at the Royal Northern Hospital, has collaborated in the production of the fifth edition of this atlas, which has now completed 22 years if its existence. This edition has been supplemented by the addition of 16 new colour plates. The pattern of previous editions is followed. Each coloured photograph is accompanied by a commentary on the disease and its method of treatment. This makes it especially useful to those who, because of distances, are unable to make use of the services of a specialist dermatologist for consultation. For teaching purposes the specialist dermatologist will probably find his own series of coloured films more useful.

The advice given in the management of cases of industrial dermatitis is most useful, as is also the warning to treat the claims of the makers of antihistamine preparations and, indeed, all blotting-paper post-graduate courses with some reserve.

Some allowances for climatic differences must be made in assessing what skin diseases are common; thus *lupus vulgaris* is rarely seen in Australia, but with our flood of immigrants must be kept in mind. It is surely wise to retain the reference to now uncommon cases of syphilis, to remind us of the condition in the sporadic cases that we do encounter. It is thought that the less common skin diseases, such as sarcomatosis and *cancer en cuirasse*, which occupy 50 of the 371 pages, could be omitted, from the viewpiont of economy and usefulness.

Radiological Physics. By M. E. J. Young, M.Sc.; 1957. London: H. K. Lewis and Company, Limited. 9½" x 5¾", pp. 378, with 184 illustrations. Price: £2 2s. (English).

M. E. J. YOUNG in this book presents the basic physics of diagnostic and therapeutic radiology. The author states in a preface that the book is written as a text for students preparing for specific diplomas in radiology and for radiographers-in-training preparing for qualifying examinations. In addition, he hopes that it will be useful to physicists who are entering the specialty of hospital physics. This book should fulfil these aims admirably.

The text is developed in a logical fashion, and important points are emphasized by well chosen and well produced diagrams, tables and graphs. Most of the important sections of a rapidly expanding subject are covered in some detail. In dealing with such an extensive subject in a comparatively small volume, the author has been forced to limit his elaboration of topics which one might have expected to be dealt with in greater detail. For example, it is somewhat surprising to find that only 30 pages of text are devoted to nuclear structure and the production and medical uses of artificial radioactive isotopes. Perhaps a more notable limitation of discussion is found in a section devoted to the dose received by patients during diagnostic radiology. This subject, which in recent years has come into such prominence, is covered in two pages, of which almost one complete page is devoted to tables. It is surprising, too, to find in this section that attention is devoted in the main to the dose to the skin, no mention being made of the gonad dose to the patient during diagnostic radiology.

These criticisms are to a very large degree compensated for by the well chosen references in the text to journal articles which should be reasonably accessible to students, and by supplementary general references to other books and review articles. The author, who was formerly lecturer in physics at the Royal Free Hospital School of Medicine (University of London) has the commendable objective of encouraging students to read beyond the text, and he has, as he states in his preface, provided "points of entry to the current literature".

In two chapters dealing with measurement of ionizing radiations, the author presents the subject in a manner which should enable the student to consolidate further knowledge on a sound foundation. Similarly, chapters on the interaction of radiation with matter and some chemical and biological effects of ionizing radiation will equip the student to handle his future problems with satisfactory basic knowledge.

Students preparing for examination will welcome the typical examination questions which are set out at the end of each chapter.

The book should prove a useful text to students in Australia preparing for the certificates of competence of the Conjoint Board of the College of Radiologists of Australasia and the Australasian Institute of Radiography or for university diplomas of radiology or diplomas of the College of Radiologists of Australasia. Its clear presentation and excellent references will enhance its value to students preparing for these examinations without the aid of formal lecture courses.

Differential Diagnosis: The Interpretation of Clinical Evidence. By A. McGhee Harvey, M.D., and James Bordley III, M.D.; 1955. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. 9½" x 6", pp. 680. Price: £5 10s.

IN this book the authors set out "to provide a method of approach to the diagnosis of disease" and they do this by discussing individually some 90 illustrative cases. These are grouped in fourteen chapters, under headings such as "Heart Failure", "Fever of Obscure Origin", etc., with a final chapter on "Unknown Cases for Study". Each chapter begins with a general discussion of its subject, and this is followed by a series of illustrative cases. Each case begins with an account of the case under four headings, history, physical examination, laboratory finding, and course in hospital; then follow a few pages of discussion; and the case ends with the autopsy findings (all cases come to autopsy) and summary.

It is a book with a decidedly American flavour, and seems designed principally for senior and post-graduate students. The volume is well presented and easily readable; some will find it useful mental exercise, and no doubt there is something of value to be learnt from it for most of us, but it is not a way of acquiring knowledge which will appeal to everyone.

Gastro-Duodenal Ulcer: Physio-Pathology. Pathogenesis and Treatment. By J.-Jacques Spira; 1956. London: Butterworth and Company (Publishers), Limited. 9½" x 6¼", pp. 568, with several illustrations. Price: £5.

IN this book Dr. Spira is enlarging on a theory of the cause of chronic peptic ulcer originally propounded by him in 1931. Briefly his thesis is that gastro-duodenal ulcer results from an excess of fat in the diet. This excess leads to a hypersecretion of acid and to the reflux of bile into the stomach and first part of the duodenum. This excess of acid and bile causes first chronic inflammation and then ulceration. Peptic ulcer is rationally treated by the reduction of fat in the diet and neutralization of the gastric contents.

To develop this thesis Dr. Spira has laboured to cover the subject extensively—over 4500 references are listed. Succeeding parts of the book deal with the physiology of the stomach and duodenum, the pathology of peptic ulcer, the pre-ulcerative stage, pathogenesis and clinical aspects.

Despite such a wide basis for his argument, the evidence does not always carry conviction at the crucial times. For example, no data are produced to show that patients with peptic ulcer do in fact eat more fat than the average person. The incidence of duodenal ulcer is independent of social class; but the intake of fat is higher in the higher income groups, while the incidence of gastric ulcer is lower. Such facts do not accord with his theory. Hypertrophic gastritis is described as a pre-ulcerative stage of the disease; yet the existence of such a condition is seriously doubted as a result of gastric biopsy studies. On treatment, the author states in his preface that "the theoretical considerations have been fully borne out by their practical applications", and a series of X-ray pictures with brief case notes is given in the appendix. No analysis in keeping with present-day principles of testing different therapeutic approaches is made.

While feeling humble before the enormous energy of Dr. Spira, we are unable to recommend this book as an advance in our understanding of peptic ulcer, or as a critical review of present knowledge of gastric physiology and peptic ulcer pathology.

General Techniques of Hypnotism. By André M. Weitzenhoffer, Ph.D.; 1957. New York and London: Grune and Stratton, Incorporated. 9" x 6", pp. 480, with 24 illustrations. Price: $11.50.

A PREVIOUS book, "Hypnotism, An Objective Study in Suggestibility", has made the author of this work well known to all who are interested in hypnosis.

The present work is a volume of some 450 pages, devoted almost entirely to the induction of hypnosis. It contains much detailed and valuable information. A particularly pleasing aspect of the book is the way in which the author has summarized in the text the work of many different investigators.

The book is really planned as a course of instruction in hypnosis. There are various prescribed exercises for the reader, commencing with Chevreul's pendulum, hand clasping and the sway test. As a result of this, some sections in the book are addressed to the complete beginner, and other sections are obviously intended for a reader with both a knowledge of psychological theory and experience in hypnosis. The approach is very much that of the experimental psychologist. It would seem that this method of instruction may be of more value to the student of psychology than to the student of medicine.

The physician whose interest in hypnosis lies in the treatment of psychiatric disorders may be disappointed in the emphasis given to ideomotor activity rather than to psychodynamics. He is also likely to be irritated by the author's frequent reference to the audience. There would seem to be an undue glossing over of the dangers of hypnosis. The question of perverse motivation in either subject or hypnotist is given little consideration; nor is the danger of hypnosis in the prepsychotic schizophrenic and the latent homosexual adequately discussed.

IN spite of these shortcomings, this is a good book in a field which is calling for further scientific study. The section on transference and hypnosis is of particular merit, so also

is the part which deals with dehypnotizing. The comprehensive list of authors and references will be of value to anyone who is working seriously with hypnosis. However, for the Australian market the book suffers from one serious disadvantage which is shared with most American publications. We are not aware of the exact Australian retail price, but its price in America is stated as $11.50.

The Neurologic and Psychiatric Aspects of the Disorders of Aging: Proceedings of the Association for Research in Nervous and Mental Disease, December 9 and 10, 1955. Edited by Joseph Earle Moore, M.D., H. Houston Merritt, M.D., and Rollo J. Masselink, M.D.; Volume XXXV, 1956. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" x 6", pp. 320, with 79 illustrations and 17 tables. Price: £4 13s. 6d.

THIS book is the proceedings of the thirty-fifth annual meeting of the Association for Research in Nervous and Mental Disease. The subject of aging and its accompanying disorders was approached from the point of view of the main differences between fundamental problems and neuropsychiatric problems. It was important that the committee's approach should be from a dynamic and biological rather than a static aspect. The association was interested in how the degree of senility came about, in the possible methods of prevention of such a state and how the process could be halted once it had begun. The systematic way in which the topic was attacked is seen by the papers, presented as chapter headings, beginning with the "Biology of Aging Cells", "Life History of the Neuron", "Brain Metabolism in Relation to Aging", "Aging and Intelligence", and the final chapters dealing with the "Genetics of Aging", "Neurologic Changes in the Aged" and "Rehabilitation of the Elderly Neurologic Patient". The discussions at the end of almost each paper are particularly interesting, and a summary of the paper is also included. The book itself is well set out, and each chapter is illustrated with clear graphs, tables, photographs and photomicrographs.

Clinical Cardiopulmonary Physiology. Sponsored by the American College of Chest Physicians; 1957. New York and London: Grune and Stratton. 10" x 6¾", pp. 768, with many illustrations. Price: $15.75.

THE revolution in cardiology brought about by procedures such as cardiac catheterization, and the great advances in pulmonary physiology over the last few years, have put the understanding of many circulatory and respiratory diseases on a firm physiological footing. This aspect, however, has not received the attention it deserves in the text-books, and the present publication sets out to fill the gap.

Over 50 authors have contributed, and they include many of the foremost names in this field. There are sections on normal pulmonary physiology and methods of examination and testing, as well as detailed descriptions of individual diseases. While the physiological point of view is always to the fore, a general discussion of the disease is included; the book could be held, with justice, to be a text-book of cardiopulmonary medicine in which physiology has been given its rightful place.

The sections on normal physiology and methods are simple and comprehensive; they would enable a physician with no laboratory experience to appreciate the basis and interpretation of tests and what their carrying out involves for both the patient and the laboratory.

Long chapters are devoted to asthma, bronchitis, emphysema, tuberculosis, pneumonoconiosis, *cor pulmonale*, pulmonary œdema, valvular disease of the heart, cardiac failure and congenital heart disease, and there are shorter chapters on other conditions such as sarcoidosis. These contain a great deal which is of assistance to the specialist in this field, as well as being a good assessment of the problems as they present themselves to a general physician. A clinical evaluation of methods of therapy is an integral part of the discussion of each condition.

The book is rather long, but there are good bibliographies and good indices. It is a most useful reference book, easily read, and its study will be rewarded by a greatly improved understanding of heart and lung diseases.

Bronchopulmonary Diseases: Basic Aspects, Diagnosis and Treatment. By 142 authors, edited by Emil A. Naclerio, M.D., with a foreword by Richard H. Overholt, M.D.; 1957. New York: Paul B. Hoeber. 10½" x 8", pp. 992, with 719 illustrations. Price: $24.00.

THIS is a monumental work. It has the blessing of Richard Overholt, who contributes the foreword and an article on resection in pulmonary carcinoma, and it covers all facets of broncho-pulmonary disease, including embryology, segmental anatomy, physiology and pathology, as well as the purely clinical aspects. Considerable attention has been given to diagnostic procedures, and though surgical techniques are not described, the place of surgery in diagnosis and treatment is fully discussed. The article on hydatid disease occupies 11 pages, acknowledges the contributions of Harold Dew and quotes extensively from a paper by M. P. Susman. Some subjects are dealt with by more than one author, and the only noteworthy omission, which is strange in a book with such a wide coverage, is the Hamman-Rich syndrome. The interdependence of the lungs and heart is recognized by chapters on the clinical differentiation between pulmonary and cardiac diseases, the effect of chronic pulmonary disease on the heart, and pulmonary diseases secondary to heart disease. A lengthy chapter on pulmonary manifestations of systemic diseases is particularly valuable, and the emphasis given to physiological methods of treatment in such conditions as emphysema and bronchiectasis is refreshing.

Like all text-books, this work suffers from the inevitable delay between the time of writing and that of publication (approximately two years in the case of most of the articles), though this detracts but little from the great value of the contributions.

Altogether this is an excellent authoritative book of reference for the general physician, no less than for the specialist in pulmonary diseases.

A Doctor's Book of Hours: Including Some Dimensions of the Emotions. By Merrill Moore; 1955. Springfield: Charles C. Thomas. 9" x 6", pp. 416. Price: $6.00.

AN enterprising publishing firm in Springfield, Illinois, has produced a handsome volume of poems composed by Dr. Merrill Moore, a medical practitioner of Boston in the United States of America. According to information supplied on the dust-jacket, the author is fortunate in being able to limit his professional work to a forty-hour week, thus affording spare time "to practise poetry of the first order". From the same source we learn that "perhaps once in a hundred years (if that often) a rare phenomenon occurs: the combination of a physician and a poet".

We are in full agreement with the publishers that Oliver Wendell Holmes was an outstanding example of a doctor who successfully courted the Muse in his spare time, and we recall with pleasure the high-minded thoughts and literary craftsmanship of his "Chambered Nautilus". However, Merrill Moore has chosen the ancient sonnet form as his medium of expression, one poem for each day of the year, and most of them are rendered in that peculiar modern idiom which many old-fashioned and venerable critics find perplexing and difficult to interpret when confronted with it in some of the latest forms of contemporary art, music or poetry.

At least one conservative medical journalist, with a modest taste for æsthetic values, can still rhapsodize about the faultless rhythm and musical cadences of the sonnets of William Shakespeare as he ventures to idealize the magic of pure womanhood:

> If I could write the beauty of your eyes,
> And in fresh numbers number all your graces;
> The age to come would say this poet lies;
> Such heavenly touches ne'r touched earthly faces.

Comparisons may be odious, but we cannot resist the temptation to quote a few lines from the present volume of sonnets giving food for thought on April 15:

> She was a masochist. I think she suspected it.
> We had quite a few drinks. I was drunk but felt it.
> She was passionate. She wanted me to bite her
> On the shoulders and arms. You can imagine the rest.
> (He rarely left anything for the imagination.)
> Finally she made me bite her breast.

The new generation of youthful sophisticates who feel all at odds with the growing tensions and conflicts of modern life may derive some solace and emotional satisfaction from the worldly wisdom and profundity of these unconventional poems; but we affirm most emphatically that they are not our cup of tea.

Die gezielte Diagnostik in der Praxis: Grundlagen und Krankheitshäufigkeit. By Dr. Robert N. Braun, with a foreword by university professor Dr. Hans Schulten; 1957. Stuttgart: Friedrich-Karl Schattauer-Verlag. 9¼" x 6¼", pp. 196. Price not stated.

If there was not such confusion about the naming of even the most common conditions in general practice, those who have to evaluate medical certificates would not be so shaken in their confidence in the competence of general practitioners. The reason for this is that the diagnostic methods and

terminology traditionally taught at universities and teaching hospitals are not appropriate in a large part of general practice. Only thorough research centred on separate university departments for general practice would have a hope of yielding more suitable methods and a scientifically sound terminology.

For the purpose of arriving at such a terminology, Robert N. Braun, over a period of 15 years, surveyed 10,000 consecutive patients, and proposes the adoption of a number of terms to cover more adequately the specific syndromes so often encountered in general practice. He found that afebrile catarrh of the upper respiratory passages, pyrexia of unknown origin (commonly called "'flu"), neuralgia, skin infections and minor injuries each accounted for a proportion of 5% to 10%. Then follow gastritis and enteritis, vague abdominal pains, tonsillitis and peritonitis, eczema-dermatitis, arthritis, otitis and headaches, in that order. These large groups constitute more than half of all cases of illness in the series. Every other condition is around or below 1%.

In spite of working in three different types of practice (a rural, an industrial working-class and a middle-class suburban practice), the author finds a surprising similarity of diagnostic distribution in the three types of practice; this applied also when his series was compared with British, North American and Australian surveys. This similarity he calls "the law of case distribution", which applies to all general practices among populations in moderate climates living in a modern civilized Welfare State.

The most interesting part of this book is the author's discussion of method and observer error, in which are considered, for example, such things as the borderline between physiological and pathological anxiety and the evaluation of telephone consultations and of broken-off treatment. Interesting also is the author's argument that apprenticeship schemes and teaching by existing general practitioners are poor substitutes for a separate chair and department of general practice at the university level, where research and teaching can be coordinated and centred. A number of factors influencing morbidity in general practice are considered. However, the doctor-population ratio is not mentioned, probably because the author assumes it to be similar in all Welfare States. The originality of his definitions, in spite of the simultaneous mention of the four digit categories of the International Statistical Classification, makes it difficult to compare his results independently with those of authors using the straightforward international classification. However, more adequate definitions were the main object of the author's work. There is bound to be much controversy about such definitions, but the author must be congratulated on his attempt to make a start in the right direction. Printing errors are few and are not likely to be misleading, and the tables are reasonably clear.

All who are keen to organize their diagnostic thinking in general practice will find the wealth of ideas presented in this book most stimulating reading.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Expert Committee on Malaria: Sixth Report", World Health Organization Technical Report Series, No. 123. Geneva: World Health Organization. 9¼" × 6¼", pp. 84. Price: 3s. 6d.

Mainly concerned with malaria eradication.

"Science News", No. 46, edited by Archie and Nan Clow. Penguin Books. 7" × 4¼", pp. 128, with many illustrations. Price: 4s. (Australia).

Articles of medical interest deal with some new approaches to the study of bacteria and with aviation medicine.

"Fisiopatilogia della cefalea nella ipertensione arteriosa: Osservazioni sperimentali e cliniche", by F. Sicuteri, R. Monfardini and M. Ricci. Edizioni Omnia Medica, Pisa. 9¼" × 6¼", pp. 142, with illustrations.

The text is entirely in Italian.

"Industrial Toxicology", by Lawrence T. Fairhall; 1957. London: Baillière, Tindall and Cox. 10" × 6¼", pp. 386. Price: 80s. (English).

A systematic consideration of the direct toxic effects of industrial poisons.

"Non-Venereal Syphilis: A Sociological and Medical Study of Bejel", by Ellis Herndon Hudson, M.D., D.T.M. & H. (Lond.), F.A.C.P.; 1958. Edinburgh and London: E. and S. Livingstone, Limited. 8¾" × 5¼", pp. 212, with 81 illustrations. Price: 30s. (English).

The result of ten years of clinical research in the Syrian town of Deir-ez-Zor.

"Psychosomatics: A Series of Five Lectures", edited by Joh. Booij; 1957. Amsterdam, London, New York, Princeton: Elsevier Publishing Company. 8¾" × 5¾", pp. 134, with two illustrations. Price: 24s. (English).

Published under the auspices of the Netherlands Society for Psychiatry and Neurology.

"General Pathology", edited by Sir Howard Florey; 1958. London: Lloyd-Luke (Medical Books), Limited. 9" × 6", pp. 934, with many illustrations. Price: 84s.

Based on lectures delivered at the Sir William Dunn School of Pathology, University of Oxford.

"History of the Second World War: United Kingdom Medical Series." Editor-in-Chief, Sir Arthur S. MacNalty, K.C.B., M.A., M.D., F.R.C.P., F.R.C.S. "The Army Medical Services: Campaigns", by F. A. E. Crew, F.R.S. Volume II: Hong Kong, Malaya, Iceland and the Faroes, Libya, 1942-1943, North-West Africa; 1957. London: Her Majesty's Stationery Office. 9¾" × 5¼", pp. 670, with many illustrations. Price: 84s. (English).

The second of four volumes on the Army Medical Services (Campaigns).

"Medical Radiation Biology", by Friedrich Ellinger, M.D.; 1957. Springfield, Illinois, U.S.A.: Charles C. Thomas—Publishers. Oxford: Blackwell Scientific Publications. 9" × 5¾", pp. 1080, with many illustrations. Price: £7 10s. (English).

"Written by a physician for physicians."

"The Strategy of the Genes: A Discussion of Some Aspects of Theoretical Biology", by C. H. Waddington, Sc.D., F.R.S.; 1957. London: George Allen and Unwin, Limited. 8¾" × 5¼", pp. 272, with many illustrations. Price: 28s. (English).

Six essays.

"The Planning of International Meetings"; 1957. Oxford: Blackwell Scientific Publications. 9" × 5¾", pp. 117. Price: 7s. 6d.

A handbook issued by the Council for International Organizations of Medical Sciences established under the joint auspices of UNESCO and WHO.

"Enquête épidémiologique et entomologique sur la filariose de Bancroft en Nouvelle-Caledonie et Dependances", by M. Lacour and J. Rageau, with summary in English; Commission du Pacifique Sud Nouméa, Nouvelle-Caledonie. 10" × 7¾", pp. 28, with many illustrations.

The results of survey of bancroftian filariasis in New Caledonia and Dependencies carried out in 1955 and 1956.

"Alfred Hospital Clinical Reports", edited by R. S. Lawson: Volume 7; 1957. Melbourne: Alfred Hospital. 9¾" × 6", pp. 108, with many illustrations. No price stated.

The annual publication of the Alfred Hospital, Melbourne.

"Stedman's Medical Dictionary", edited by Norman Burke Taylor, V.D., M.D., F.R.S.C., F.R.C.S. (Edin.), F.R.C.P. (Can.), M.R.C.S. (Lon.), in collaboration with Lieutenant-Colonel Allen Ellsworth Taylor, D.S.O., M.A.; Nineteenth Revised Edition; 1957. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9¾" × 6¼", pp. 2704, with many illustrations. Price: £6 17s. 6d.

This well-known medical dictionary has been fully revised since the previous edition was published four years ago.

"Cortisone Therapy: Mainly Applied to the Rheumatic Diseases", by J. H. Glyn, M.A. (Cantab.), M.D., M.R.C.P., D.Phys.Med., with a foreword by The Rt. Hon. The Lord Cohen of Birkenhead, M.D., D.Sc., LL.D., F.R.C.P., F.A.C.P.; 1957. London: William Heinemann (Medical Books), Limited. 8¾" × 5¼", pp. 172, with four illustrations. Price: 21s. (English).

This monograph is described by Lord Cohen as "a comprehensive and judicial survey of the salient features of the chemistry and pharmacology of these steroids, and the practical problems of cortisone therapy".

The Medical Journal of Australia

SATURDAY, FEBRUARY 22, 1958.

PLACEBOS.

EVERY medical man from time to time uses placebos whether consciously or unconsciously, but it is only in the past few years that much has been learned about the powers of pharmacologically inert substances to produce therapeutic effects. Like many other terms, it is not possible to give a precise definition of the word placebo which will satisfy everyone. The Shorter Oxford Dictionary defines it as "a medicine given more to please than to benefit the patient", while Webster calls it "a medicine or preparation, especially an inactive one, to satisfy a patient". E. J. Wayne,[1] Regius Professor of Practice of Medicine at the University of Glasgow, in an article on placebos and their uses, considers that there is a significant difference between a dummy tablet given without suggestion in a controlled clinical trial of a drug and the same tablet administered in the ordinary course of medical practice with the strong implication that it will produce some desirable effect. But is the dummy tablet ever given without suggestion? In modern methods of testing the clinical activity of new drugs one series of patients is given the new drug in tablets or by injection or in other ways, and another series, as nearly comparable as possible, is given a tablet or other preparation containing an inert or relatively inert substance, the preparations being as nearly the same to look at as possible. The favourable and unfavourable effects are noted in the two series. For the best results, to avoid bias on the part of the physician and the nursing staff, it is considered desirable to use the "double blind" technique of administration, in which physician, nurse and patient are not aware whether a dummy tablet or the supposedly active drug is being administered. Surely here there is the same suggestion to the patients in both series that the tablet will do them good.

These methods for assessing the clinical value of new drugs have been in use for the past ten years and have yielded much valuable information, not least the recognition of the placebo effect of all or most drugs. It has been shown by many workers that pain of all kinds can often be relieved by injection of sterile saline, and that these injections will bring about improvement in many other conditions in a percentage of patients. Particularly favourable to the alleviating action of inert substances is the vague sense of ill-health for which a patient requests a tonic. What doctor has not obtained good results in these cases by giving "Mist. Gent. Alk."? Most of the mixtures given for the treatment of the common cold are made up of relatively inert substances, and yet they seem to give relief in a large proportion of cases. H. K. Beecher[1] analysed the results of 15 studies on 1082 patients. The effectiveness of inert tablets was of the order of 35% whatever symptom was studied, in a wide variety of areas: wound pain, the pain of *angina pectoris*, headaches, nausea, phenomena related to cough and to drug-induced mood changes, anxiety and tension and the common cold. Other studies give somewhat similar results. A remarkable fact is that inert substances can produce toxic effects, sometimes severe.

It is not only in the treatment of disease that one sees these placebo effects. Some years ago Professor F. Cotton, of the University of Sydney, gave champion swimmers coloured glucose solution or similarly coloured water sweetened with saccharin before relay races. About the same number thought that they were better with the glucose and with the saccharin, and in both series some thought that their performance was poorer. In fact there was no difference in the performances of the two groups whether on glucose or saccharin. Evidence from many sources indicates, then, that about one-third of all individuals will obtain symptomatic relief from the administration of inert tablets or injections. It must be noted that this placebo effect will probably also be given by the active drug; particularly is this the case when the drug has a significant hypnotic or analgesic action. If the administering physician believes what he has read in the advertisements for new drugs, it is easy to transmit his own faith to the patient and so achieve a positive therapeutic result from an inert drug. The history of drugs for the treatment of *angina pectoris* illustrates this. The "tincture of enthusiasm" dispensed with the drug is helpful. Many years ago Osler said "use new drugs while they continue to act". If one-third of a large series of patients are placebo reactors, with small groups a much larger proportion may be found in accordance with the laws of chance and entirely false impressions obtained. Every week papers are published in medical journals giving the results of the use of some drug in a particular disease in a small number of patients and drawing conclusions as to the value of the drug, when the information given is totally inadequate for the drawing of any conclusions. An important aspect that is all too seldom borne in mind is the finding of L. Lasagna and his colleagues[2] that the response of a "placebo reactor" to a potent drug can be different from, and even greater than, that of a non-reactor.

How far are placebos used as such, and is the use of placebos justified? Beyond doubt the greater part of the vitamin pills, cough mixtures and, one suspects, tranquillizing drugs, are given as placebos. Many of the newer and, as yet, improperly tested drugs are used unconsciously as placebos. Professor Wayne comments: "Few practitioners appear to wish to know whether the medicines they use could be replaced by inert substances in a significant proportion of cases. Indeed the very suggestion that they should replace the almost certainly

[1] *Surgo*, 1957, 24:15.

[1] *J.A.M.A.*, 1955, 159:1602 (December 24).
[2] *Am. J. Med.*, 1954, 16:770 (June).

inactive injection they are using as a tonic by sterile saline in order to test this hypothesis gives rise to considerable emotional response." It has been said that "the placebo is a form of deceit initially of the patient, ultimately of the doctor". Others consider that deception may be justified if it is practised for the ultimate welfare of the patient—the point was discussed at length a few years ago by Alan Leslie.[2] In general, the view held by many physicians is that there is a definite place in practice for the deliberate use of a placebo—for example, when the patient has been thoroughly investigated and no really effective specific treatment is available. The drug prescribed should be cheap and non-toxic. Professor Wayne[3] has given his indications for the use of placebos as follows: "When a physician is in doubt about whether a medicine is going to act through physical or psychological mechanisms, he should use a simple, cheap and relatively inert preparation. If he does not achieve the desired effect, he can try the effect of more potent preparations." These are attitudes to which few, if any, would take exception. At the other extreme we may quote a good example of the lowest reasons for using a placebo from a small book on prescriptions and indications for their use published about fifty years ago. The prescription was for a solution of ammonium picrate. This is golden yellow in colour, bitter to the taste and not toxic. The indications given were: (i) when there is nothing the matter; (ii) when it does not matter; (iii) when you do not know what is the matter. It is little wonder, then, that Richard Cabot,[4] writing at about the same time, asserted that every placebo was a lie and dismissed the giving of placebos as quackery.

Current Comment.

TWO NEW MEDICAL JOURNALS.

FACED by the ever-increasing output of medical literature, one tends to regard critically the advent of any newcomers to the scene. We have lately been invited to draw attention to two recent ventures in medical journalism, which afford some interesting contrasts.

The *Journal of Mental Deficiency Research* is sponsored by the National Society for Mentally Handicapped Children (London) and published its first number in July, 1957. It modestly proposes to appear twice a year, with the intention of becoming a quarterly journal if and when this is warranted by the quantity and quality of contributions received. Its publication is justified by the fact that hitherto papers on this subject have been scattered over a wide selection of journals, and that sometimes those writing on this subject have difficulty in finding an appropriate vehicle for their contributions. The editorial committee stipulates that the papers published should present "original observations which will ultimately increase the general body of scientific knowledge on the subject". The first number contains five papers, four of which are from hospitals and institutions in or near London, the fifth being from America. Of these articles, one by L. S. Penrose on the "Genetics of Anencephaly" gives some interesting information about the geographical distribution and the familial incidence of this and allied conditions. D. H. H. Thomas contributes an interesting survey of mental deficiency problems in the United States, as seen by an outsider, being information gathered in the course of a lecture tour sponsored by the World Health Organization. A paper on phenylketonuria by D. Y. Hsia and others provides a useful review of a subject to which this author has already made important contributions. The format of this journal is convenient and the quality of its production is good. It appears to fill a small but important gap in the ever-expanding front of medical literature, and will be particularly welcomed by those especially interested in the subject of mental deficiency.

The editors of *Living Conditions and Health* claim that there is no other journal which covers the same ground, and feel confident that it will occupy an important place in world medical literature. It was conceived as a result of the "World Congress of Doctors for the Study of Present-Day Living Conditions" held in Vienna in 1953, and now appears as a quarterly journal concerned with any aspect of living conditions in so far as they demonstrably affect health. It has a markedly international flavour, and is published in six different language editions: English, Chinese, French, German, Russian and Spanish. The Spanish edition is published in Santiago (presumably in Chile). The journal is edited in Vienna. There is an editorial committee of 35, on which France is strongly represented with five members; the United Kingdom and Russia contribute three members each; the United States is conspicuous by its complete absence from the list. The first number contains 14 articles and reports. Original articles include an investigation into the protein requirements of workers, by two Japanese doctors; a paper on the epidemiology and prophylaxis of streptococcal infections, from a Czech worker; an account of a fatal case of radiation sickness in a Japanese fisherman; and a study entitled "Migration and Tuberculosis", from Great Britain. Other items include an interesting report on the medical section of the international conference on the Peaceful Uses of Atomic Energy, held at Geneva in 1955; the annual report of the World Health Organization; and finally seven pages of abstracts of relevant articles from other journals. Clearly this journal contains a good deal that is of considerable general interest, and of special interest to those concerned with social medicine and public health, but one is left wondering to what extent the causes of internationalism or of medicine were uppermost in the minds of the originators of this enterprise.

SCALENE NODE BIOPSY AS A DIAGNOSTIC PROCEDURE.

BIOPSY of the scalene nodes, whether palpable or not, introduced by A. C. Daniels[1] in 1949, is employed almost as a routine in some centres and rarely if ever in others. Apart from their strategic situation in regard to the lymphatic drainage of the chest and abdomen, they possess the advantage that they are less subject to recurring non-specific inflammatory reactions which may confuse the issue in biopsy material from the axillæ and groins. The conflicting opinions regarding the value of the procedure, once it is granted that the nodes may show specific pathological changes even though they are impalpable, largely centre around two points: does the pathological process found reflect the same process as is occurring in the thorax or abdomen, and does the finding of metastatic carcinoma contraindicate surgical attack on the primary lesion? In regard to the first question, frankly tuberculous intrathoracic glands may occasionally be associated with scalene nodes which, in the absence of caseation, show a reaction indistinguishable from sarcoidosis. This should not produce many diagnostic errors when other features of the patient's illness are taken into consideration. The second question is more difficult, but the surgeon's answer was given by Sir Clement Price-Thomas at a recent meeting of the Thoracic Society in London: he merely observed that in his experience of many resections for lung carcinoma the subsequent appearance of metastases in the

[2] *Am. J. Med.*, 1954, 16: 854 (June).
[3] *Brit. M. J.*, 1956, 2: 157 (July 21).
[4] *J.A.M.A.*, 1906, 47: 982 (September 29).

[1] *Dis. Chest*, 1949, 16: 360.

scalene nodes was a great rarity. This contrasts with the high percentage of pre-operative positive biopsy results in some reported series. It is a fair compromise to suggest that, whatever the diagnostic role of scalene biopsy, the presence of tumour cells at microscopy should not contraindicate operation, at least where the primary lesion is in the thorax.

Two recent autopsy studies provide objective data for the evaluation of scalene biopsy. W. A. Bennett and D. T. Carr,[1] of the Mayo Clinic, removed both scalene pads of fat in 74 subjects (none had palpable glands in the area), finding lymph nodes on both sides in a third, on the left side only in another third, and on the right side only in 16 instances. In four cases no nodes were found on either side, and curiously enough there is no record of whether these subjects had significant intrathoracic disease. In 18 of the remaining 70 cases there was intrathoracic disease of a type which might be reflected in the scalene nodes. In 12 instances the "biopsy" gave the correct diagnosis, while in the remainder the biopsy result is recorded as "negative". In the latter group three cases were of "pulmonary granulomatosis, cause undetermined", two of tuberculosis and one of Hodgkin's disease. The positive biopsy results were found in cases of leuchæmia (five), primary or secondary carcinoma (four), Hodgkin's disease (two) and sarcoidosis. In the 52 cases with no significant intrathoracic disease no "false positive" reports were made from the "biopsy" material, although in two cases of cirrhosis of the liver unusual phagocytosis was observed. It is important to note that the sections were studied as "unknowns".

P. Schiff and B. A. Warren,[2] from the Royal Prince Alfred Hospital, Sydney, have reported a similar study, to the results of which they have added a useful review of the literature. In their series lymph nodes were "practically always found". It would seem that in 46 of their 123 subjects the autopsy diagnosis was such that involvement of the scalene nodes was conceivably possible; the diagnoses include carcinoma of many organs, leuchæmia, Hodgkin's disease, tuberculosis and a miscellany of other conditions. They conclude that an unequivocal diagnosis could have been made in life in almost 45% of this group, or 16% of the total series. The results are not directly comparable with the preceding study, partly because the authors do not state whether the nodes were palpable or not, and partly because they did not restrict themselves to intrathoracic disease. However, they also found no "false positive" results.

These investigations leave little doubt that scalene node biopsy, provided it is performed with thoroughness, is a valuable diagnostic aid in selected cases. Furthermore, it would seem unlikely to prove misleading when interpreted—as with the results of any special investigation—in the light of other available information.

[1] *Am. Rev. Tuberc.*, 1957, 76: 503.
[2] *Dis. Chest*, 1957, 32: 198.

ZINC METABOLISM IN HEPATIC DYSFUNCTION.

THAT zinc is an essential trace metal for man and animals has been known for some time, although, with the extensive modern use of zinc-lined vessels as food containers, it seemed improbable that deficiency could occur. Crystalline insulin contains zinc, but the significance of this is not clear. The enzyme carbonic anhydrase also contains zinc, apparently an essential constituent of the enzyme. Over the past few years B. L. Vallee and his collaborators have published a series of papers on the relation of zinc to a number of enzymes in animal tissues and in yeast. They have found that zinc is indispensable to the activity of several dehydrogenases, such as alcohol dehydrogenase and glutamic dehydrogenase and carboxypeptidase from animal liver. The involvement of zinc in the oxidation of ethyl alcohol and the fact that ethyl alcohol is believed by many to have a primary role in the development of liver cirrhosis has led to the study of zinc metabolism in hepatic dysfunction by B. L. Vallee, W. E. C. Wacker, A. F. Bartholomay and F. L. Hoch.[1] It was found that the concentration of zinc in the serum of patients with post-alcoholic cirrhosis was much decreased, the extent of the decrease bearing a significant relation to the severity of the disease. These patients excreted relatively large quantities of zinc in the urine, so that the body zinc stores were considerably depleted. In 14 normal subjects the mean excretion in micrograms per 24 hours was 457 with a standard deviation of 120; in ten patients with post-alcoholic cirrhosis the corresponding figure was 1016 with a standard deviation of 196. The duration and course of the disease differed widely in these patients.

When zinc sulphate was given to the patients in an amount corresponding to 19·5 milligrammes of zinc per day, the approximate normal daily intake, there was considerable reduction in the urinary zinc excretion. The rate of return to the normal value of excretion was in inverse relation to the severity of the disease. One subject with terminal cirrhosis showed very low excretion in the control period and not much rise when zinc sulphate was administered. In six patients there was marked but variable reduction in bromsulphalein retention after administration of zinc sulphate. Liver samples obtained at autopsy from five persons who died with post-alcoholic cirrhosis were compared with similar samples of the liver from seven without cirrhosis, and it was found that the zinc and iron content was significantly decreased in the persons with cirrhosis.

It is evident from the results obtained by Vallee and his colleagues that there are marked alterations in zinc metabolism in patients with post-alcoholic cirrhosis. Since there is low zinc content of serum and liver and increased excretion in the urine, there must be a conditioned deficiency in which the normal intake does not meet the needs owing to unusual secondary factors. A conditioned zinc deficiency can be produced in swine by giving high levels of calcium in the diet with normal zinc intake. The fact that zinc is an essential constituent of alcohol dehydrogenase and glutamic dehydrogenase of the mammalian liver leads to the belief that alcohol dehydrogenase of liver is vulnerable to repeated or to continuous metabolic assaults by high concentrations of ethyl alcohol. Liver alcohol dehydrogenase also oxidizes glycerol and vitamin *A* alcohol, and abnormal dark adaptation has been found to be present in association with cirrhosis, indicating abnormal vitamin *A* metabolism.

Whether dosage with zinc of patients suffering from post-alcoholic cirrhosis of the liver will have any curative effect remains to be seen, but the data in this paper are suggestive.

[1] *New England J. Med.*, 1957, 257: 1055 (November 28).

HOW TO USE A MEDICAL LIBRARY.

WITH the modern trend of educating students in the use of libraries, the appearance of a third edition of Leslie T. Morton's clear and concise guide on how to use a medical library[3] is very timely. Additional features in the form of principal abstracting journals now available, and a brief description of some of the medical classification schemes are particularly useful. The chapter on the "Compilation of Bibliographies" is most informative despite its brevity, and anyone who has had to contend with the problems created by ill-prepared bibliographies will appreciate the author's reference to the remarks made by Place (1916) on the verification of references: "A common fault lies in taking a reference from another bibliography as though it were thereby Gospel truth. . . . Take no reference for granted. Verify the reference that your best friend gives you. Verify the reference that your revered chief gives you. Verify most of all the reference that you yourself found and jotted down. To err is human, to verify is necessary."

[3] "How to Use a Medical Library: A Guide for Practitioners, Research Workers and Students", by Leslie T. Morton, A.L.A.; Third Edition; 1957. London: William Heinemann (Medical Books), Limited. 7¼" × 4¾", pp. 64. Price: 7s. 6d. (English).

Abstracts from Medical Literature.

OTO-RHINO-LARYNGOLOGY.

Technique of Tympanoplasty.

H. L. BELL (*Arch. Otolaryng.*, November, 1957) states that every patient considered for operative intervention for the relief of chronic aural suppuration should also be considered a candidate for some form of tympanoplasty, provided that cochlear function seems adequate. This is a report on 100 such cases. It is emphasized that the operating microscope should be used to assist in the meticulous removal of diseased tissue from the oval and round windows and from the hypotympanum and tubotympanum. The use of some form of acoustic probe is necessary to determine the sound-conducting capacity of the ossicular chain, while comparison of the air conduction audiogram with that taken after loading the round window with an oil-soaked cotton prosthesis is employed to determine functional sufficiency of that window. The technique of operation is modified to meet such variants as type, location and size of the perforation and functional responses. In some instances, when no middle ear disease is present, operation can be carried out through the external auditory meatus alone, but in the presence of intratympanic disease, which has to be meticulously eradicated, the endaural surgical approach is required. In all instances, after thorough removal of diseased tissue, the epithelium on the outer aspect of the tympanic membrane is carefully removed to expose the fibrous layer. In some instances a thick split-thickness free skin graft is placed over this and the adjacent denuded area of the meatal wall. Exact adjustment of the graft to the denuded surfaces is essential. In some cases of small marginal perforations, closure may be effected by mobilization of the adjacent segments of the drum, followed by the turning over of a pedicled flap from the meatal wall. When the perforation is large, as well as seeking to obtain adherence of the graft to its denuded margins, the author also tries to make the graft adhere to the upper part of the promontory by removal of small segments of mucosa from that region, and then making deliberate contact between the raw surface of the graft and the promontory. In some instances a fenestration of the external semicircular canal may be performed to provide a new opening to take the place of an occluded and thus non-functioning stapes and oval window. This series of 100 cases included patients with various degrees of middle ear disease and with large and small perforations, variously located. Closure of the tympanic defect was secured and restoration of useful hearing was achieved in a large proportion of these patients. In a small number subsequent deterioration of the graft resulted in the reappearance of a small perforation, often at the lower margin of the drum. However, hearing continued to be adequately improved in spite of the small breakdown. Recurrence of discharge led to failure in some. It is thus demonstrated that satisfactory hearing can be obtained from tympanoplasty in residually damaged ears if one adheres to certain principles. Adequate functional activity of the ossicles and of the windows must be determined. All diseased tissue must be removed. A mucosa-lined cavity extending from the cochlear window to a patent Eustachian tube must be maintained to give an intact vibrating drum. Fenestration as a secondary procedure may be performed with excellent results, provided a mobile round-window membrane is present.

A New Operation for Conductive Deafness.

J. H. T. RAMBO (*Arch. Otolaryng.*, November, 1957) describes a new operation to restore hearing in conductive deafness of chronic suppurative origin. The operation, performed in one stage, is designed with a threefold purpose: (i) the elimination of diseased tissue; (ii) the reconstruction of a middle-ear air space; and (iii) the establishment of a new conducting mechanism. A radical mastoidectomy is considered necessary for the elimination of diseased tissue. In chronic disease sufficiently established in the middle ear to cause deafness, conservative measures will not enable the surgeon adequately to remove diseased bone and other material which may be in the middle ear. Plastic reconstruction will break down unless all diseased tissue is removed. The restoration of an air-containing functional middle ear cavity requires an open round window and Eustachian tube. The second part of the operation aims at reconstruction of an air-containing middle ear cavity. In five cases of the first 10 in which this was attempted it was found possible to close total perforations of the drum with a pedicled flap from the anterior canal wall. By combining the new air space with a fenestration procedure it was found possible to obtain good practical hearing. However, cholesteatomatous activity from the in-turned epithelium destroyed all the new drums in three or four months. Split skin grafts from the thigh tended to become distorted and to develop fibrous adhesions. It is possible to take a more adequate pedicled graft from the temporal muscle, and this is thick enough to bridge the middle ear space without actually collapsing into it. A sound-conducting system is created on the fenestration principle, the external semicircular canal being used for the new window. It is believed that the relatively thick temporal muscle covering the middle ear also provides a loading of the round window, and thus better phase differentiation and better hearing. Pedicled flaps of integument from the external auditory canal are finally placed over the lower part of the muscle flap, thus maintaining an external canal.

Histopathology of Stapes Ankylosis.

E. P. FOWLER, JUNIOR (*Arch. Otolaryng.*, August, 1957) states that more basic knowledge of stapes fixation is vital if we are to improve the techniques used to alleviate the conduction deafness of otosclerosis. This paper describes the ankylosed and partially fixed specimens available to the author. Several different types of fixation of the stapes are found. Fibrous adhesions extending from the promontory to the anterior border of the oval window or to the head of the stapes were seen. These are probably inflammatory rather than otosclerotic changes. Calcified concretions can occur in the annular ligament, usually in association with fibrous adhesions to the anterior crus. The annular ligament can be narrowed by bony invasion, either anteriorly or posteriorly. Single or multiple bridges of various sizes of mixed bone and calcified spicules can occur at any margin and apparently regardless of the situation of the main focus. The focus can be in the footplate and crura and impinge on the stapes niche from within. When Rosen reported his mobilization procedure, many were sceptical as to the probability of a permanent result. This is still a good question. Many writers seem to assume that Rosen's manipulation actually loosens the whole footplate in the oval window by breaking through the diseased process. Study of histological material makes this appear possible in very few, if any, patients. Actual surgical manipulation experiments suggest there is a much more plausible explanation than loosening up of an ankylosed joint. What may happen is that a break occurs of a normal part of the footplate, and probably in many cases a fracture of one crus as well. The normal footplate is of very thin endochondral bone, and it is thought that it does not heal by bony union. Bony specimens showing such fractures and non-union have been reported by several observers, and in a specimen reported by the author such a happening is demonstrated in the stapes footplate of a patient who died three weeks after a fenestration operation. In this case the stapes was apparently mobilized through the only normal area left in it. The problem is to find a way in which the footplate can be fractured more often without danger to the patient, and it seems that it is necessary to keep at least one crus of the stapes intact and attached to a mobile fragment of the footplate. Much further study is needed, especially with the long focal-length operating microscope and with the high-power microscope in the laboratory.

Caloric Nystagmus.

J. MAHONEY, W. L. HARLAN AND R. G. BICKFORD (*Arch. Otolaryng.*, July, 1957) have investigated the visual and other factors influencing caloric nystagmus in normal subjects. Clinical experience has shown that the response to caloric stimulation may vary in the same person in the hands of different examiners and on different days. The measurable factors of caloric nystagmus are its latency, its amplitude, its frequency and its duration. It is difficult to determine these factors accurately by simple direct observation. An attempt has been made to obviate this difficulty by recording the results graphically. As with other reflex mechanisms, the caloric response is subject to integrating neural influences arising from the cerebrum, cerebellum and upper part of the cervical cord. The state of visual fixation may play an important role in the nature of the response obtained by caloric stimulation. In addition, the influence of other cerebral factors, such as concentration and diversion, needs to be determined. The

eye is a charged body, the cornea being electropositive in relation to the retina. When electrodes are placed on either side of the eye, any movement in the plane of the electrodes will register a difference in potential across them. This small potential can be amplified and recorded. This method is advantageous, in that it permits recording when the eyes are closed. The results reveal that there is an inverse relationship between the amplitude and the frequency of nystagmus. The amplitude increases and the frequency decreases progressively with increasing interference with fixation. There is also a moderate increase in the duration of nystagmus associated with a decrease in the fixation factor. Eye closure increases these changes. Under this condition, caloric nystagmus is often completely inhibited, or is present only intermittently, appearing in brief bursts. Mental activity, or cerebral stimulation, frequently elicited a brief burst of nystagmus when this had been inhibited by eye closure. This finding suggests that cerebral factors play an important role in caloric nystagmus, and supports the suggestion of others that the caloric response may vary with the patient's state of alertness.

OPHTHALMOLOGY.

Management of Intraocular Malignant Disease.

E. B. DUNPHY (*Am. J. Ophth.*, September, 1957) discusses the management of retinoblastoma, malignant melanomata of the uveal tract and metastatic tumours. In unilateral retinoblastoma enucleation should be performed so as to resect at least 10 millimetres of the optic nerve, the globe and muscles should be examined carefully for extraocular extension of the tumour, and a specimen taken for biopsy from the optic nerve, to be studied for evidence of invasion. If there is residual tumour in the optic nerve, a small chance does exist of saving the patient's life by using radioisotopes locally in conjunction with radiotherapy. If there is extraocular extension into the orbital tissues, the prognosis is hopeless. The fellow eye should be carefully examined under general anæsthesia at two-monthly intervals for one year, and then less frequently for another two years. In bilateral cases, the eye with the more advanced disease should be enucleated and the other eye treated by irradiation, chemotherapy or diathermy. Methods of irradiation used are X-radiation together with TEM, implantation of radon seeds in the sclera over the tumour, and the use of cobalt disks. Diathermy has its advocates and may be useful in the treatment of small flat tumours in the periphery of the fundus where X-radiation is hazardous. In tumours near the optic nerve, or in large tumours, or in those which show seeding, it is not recommended. For malignant melanoma the safest procedure is enucleation, but in certain unusual circumstances diathermy coagulation should be considered. Diathermy should be considered in one-eyed individuals or in patients refusing enucleation. Iris tumours which do not involve the ciliary body should be excised in an iridectomy. If the ciliary body is involved, enucleation should be performed. Metastatic tumours of the choroid, which usually come from a carcinoma of the breast, may disappear after bilateral oophorectomy and adrenalectomy.

Malignant Melanoma of the Choroid.

A. B. REESE (*Arch. Ophth.*, October, 1957) reviews 214 patients who had fundus lesions which made the examiner suspect melanoma. Of these, 106 patients did not have melanoma, in 84 cases the diagnosis of melanoma was confirmed, there were 10 cases in which an incorrect clinical diagnosis was made and either the subsequent course or microscopic examination of the enucleated eye proved the diagnosis incorrect, and finally 14 patients were lost in the follow-up. The most useful aid in making a correct diagnosis was retro-illumination. The test consists of viewing the lesion through a dilated pupil while a very bright ophthalmoscope light is thrown below its lower margin. If the lesion is melanoma, the reflected rays do not penetrate the lesion, and therefore its border is seen as an opaque or dark zone. This test was useful in arriving at a correct diagnosis in 85% of malignant melanomata in this series. In 20% of melanomata an abnormal vascular pattern was noted over the surface—i.e., there were wide vascular channels. These blood sinuses probably represent varicose veins from passive congestion due to constriction of that portion of the tumour which has extended through the elastic *lamina vitrea*. In 15% of the cases the lesion showed a light brown pigmentation, in contrast to the jet black pigment associated with proliferation of the retinal epithelium. In approximately one-third of the cases there were acquired or dilated episcleral vessels corresponding to the site of the tumour. Hæmorrhage plays a most inconspicuous role in melanoma. When it is present, it is usually in one or more small areas and most frequently located over the lesion. On the other hand, in inflammatory lesions hæmorrhage is common around the lesion. A serous detachment of the retina in the dependent portion of the fundus harbouring a malignant melanoma is fairly common, and such an occurrence favours the diagnosis of melanoma. A feature which is sometimes of diagnostic help is the recognition of the mushroom shape of the tumour. Finally in early, more or less flat melanomata and over and around the base of larger mushroom-shaped melanomata, drüsen bodies are seen.

Contact Lenses in Monocular Aphakia.

E. L. GOAR (*Arch. Ophth.*, September, 1957) makes a plea for the use of contact lenses in monocular aphakia. In selecting patients for operation the vision in the opposite eye must be normal or nearly so. The patient must not be feeble, clumsy or nervous, and he should be one in whom binocular vision is desirable. The patient must be cooperative. If visual acuity is not 6/9 or better, there is no use in fitting a contact lens. If visual acuity is normal, a contact lens is made. The degree of fusion which the patients obtain does not seem to matter. The advantage of the procedure is that an eye is put to work that was formerly useless, and in many cases binocular vision is obtained. The problem of exotropia and the danger of lens-induced glaucoma no longer exist.

Effect of Adrenal Resection on Hypertensive Retinopathy.

W. C. FRAYER (*Arch. Ophth.*, September, 1957) reports on the retinal changes in 111 severely hypertensive patients after total or subtotal adrenalectomy combined with sympathectomy. Reduction in the retinopathy occurred in 78% of patients. Among those with grade III retinopathy there was improvement in 92%, while all patients with grade IV retinopathy showed improvement. Reduction in retinopathy may occur without improvement in blood pressure readings. It is thought that reduction in retinopathy is due to diminished peripheral resistance, with consequent improvement in retinal blood flow.

UROLOGY.

Total Cystectomy in Vesical Carcinoma.

E. W. RICHES (*Brit. J. Urol.*, September, 1957) reviews the five-year survival rates in his patients who had undergone either partial or total cystectomy for vesical carcinoma. He is particularly concerned to evaluate the status of the total operation, since in many hands the results have been disappointing. With total cystectomy, there is the added inconvenience and danger of transplantation of the ureters. The author favours the use of total cystectomy for purely mucosal lesions, most of these being papillary tumours which tend to spread widely throughout the bladder. Of a total of 85 operations for partial cystectomy, only 17 were performed for mucosal lesions, while 55 were performed for neoplasms invading the muscle coat; the remaining 13 were for perivesical lesions—that is, tumours spreading right through the bladder wall. The author states that in the solid tumours (non-papillary), though the danger of metastases is greater, if treatment is applied early while the neoplasm is fairly localized, the results of partial cystectomy are as good as those of the total operation. After partial cystectomy, at the end of five years, about half the patients with mucosal lesions, about two-thirds of those with invasion of the muscle, and all who had had perivesical lesions were dead. In 110 patients who underwent total cystectomy the incidence of the mucosal, muscular and perivesical stages of penetration was equal. In the mucosal group, after five years, two-thirds were dead, in the muscular group 90% and in the perivesical group 96%. The operative mortality of total cystectomy was 12·7%. In view of these results the author considers that total cystectomy must be regarded as merely palliative in the groups with muscular and perivesical lesions, but that total cystectomy offers a "reasonable hope" of eradicating carcinoma of the bladder where there is no invasion of the muscle. Some unexpected survivors had previously been treated by irradiation, and combined treatment might prove to be the best therapeutic approach to more advanced lesions.

Medical Societies.

PÆDIATRIC SOCIETY OF VICTORIA.

THE Jubilee Meeting of the Pædiatric Society of Victoria was held in Melbourne during the week March 11 to 15, 1957. The meeting was opened on Monday, March 11, by the President, DR. J. F. WILLIAMS, who welcomed a distinguished guest, PROFESSOR ASHLEY WEECH, of Cincinnati, Ohio. Part of this report appeared in the issue of February 15, 1958.

Neonatal Osteomyelitis.

DR. M. CLARKE read a paper entitled "Neonatal Osteomyelitis: A Disease Different from Osteomyelitis of Older Children" (see page 237).

DR. E. PRICE said that one serious difficulty in treating osteomyelitis of the newborn was the fact that the underlying bony lesion was overlooked, chiefly owing to the insidious onset. The diagnosis was thought to be cellulitis and Erb's palsy, and it was the benign course which led to the delay in accurate diagnosis.

DR. H. WILLIAMS also remarked upon the resistance to penicillin, which was steadily increasing, and was due to the fact that the infants contracted the infection within a select community. It was now widely held that the wider spectrum antibiotics should be used immediately.

DR. H. BOYD GRAHAM urged that any areas of inflammation should be opened early, for though the prognosis for life was good, the local damage could be lessened by early incision.

DR. D. MCKAY said that in Adelaide "Chloromycetin" was most likely to be the effective drug, and sensitivity tests confirmed that. There might be regional variations in sensitivity patterns. Dr. McKay also said that he had been impressed by the rapidity of the onset of swelling in some cases, with rapid accumulations of pus.

DR. J. PERRY said that in some 1600 sensitivity studies per year, his department had found that 30% to 40% of staphylococci were resistant to the tetracycline group, and he doubted that those drugs could be used confidently for dangerous lesions.

DR. S. WILLIAMS said that, though he was on the left side of the house, he concurred in the use of wide-spectrum antibiotics in those cases, and erythromycin was his preference. It was fortunate that newer drugs were constantly appearing, as they would probably be required as time passed.

DR. T. MADDISON said that in Birmingham, 50% of deliveries were still domiciliary, and of seven babies with neonatal osteomyelitis, all but one had been delivered in hospital. That seemed to confirm the institutional source of infection.

DR. M. POWELL asked whether any reason was known for the absence of toxæmia in neonatal osteomyelitis.

Dr. Clarke, in reply, said that he thought the absence of toxæmia was due to the rapid transgression of the thin cortex at that age. The pus escaped into the soft tissues and was no longer under pressure, and absorption was hence less rapid.

Diagnosis of Undescended Testes.

DR. P. JONES read a paper entitled "The Superficial Inguinal Pouch and the Undescended Testis" (see page 239).

DR. E. DURHAM-SMITH asked what reliability could be placed on the size of ectopic testes and of those arrested in the line of descent, and whether the size had any influence on diagnosis.

Dr. Jones, in reply, said that size was a considerable help in diagnosis. If the testis in question was the same size as its fellow, it was most likely ectopic; if it was smaller, it was probably arrested in the normal line of descent.

DR. D. STEPHENS said that he thought there was a fourth group, in which one was uncertain whether the testes would come down or not. However, if on palpation one could really feel the third ring, then there was probably no fourth group.

Dr. Jones said that he would be the first to admit that there was still a group in which the diagnosis could not be made before operation.

DR. M. CLARKE said that he was sure there was a fourth group that did not fit into the classification. He thought there were some testes which were ectopic but did not have the mechanical bar.

Types of Talipes Equinovarus.

DR. D. SCHLICHT discussed the types and treatment of *talipes equinovarus*, and illustrated his talk with a colour film. His study was based on a series of 45 patients with *talipes equinovarus* who had been treated by manipulation and splintage alone. All cases of *talipes equinovarus* associated with spinal meningomyelocele, arthrogryphosis and congenital absence of the tibial segment of the limb bud had been excluded. The paper represented an interim report on a larger and longer study of *talipes equinovarus*. The purpose of the paper was to illustrate how *talipes equinovarus* could be subdivided into three main groups, namely: (i) those cases in which a well-developed heel was present; (ii) those in which the heel was poorly developed; (iii) those in which the foot was short and squat. That subdivision was essential as a guide to prognosis and the type of later treatment to be employed. The film was then shown to illustrate the essential features of the manipulative treatment employed in the series. The essential features included the different types of splint employed, an illustration of the deformities present in *talipes equinovarus*, and examples of the three types of *talipes equinovarus* (well-developed heel, poorly developed heel, short, squat foot).

Dr. Schlicht then showed a slide setting out the results of treatment in the three types of *talipes equinovarus*. In that type with a well-developed heel, the manipulative method of treatment, as outlined in the film, had given a satisfactory result in 45 out of 46 feet. In only a very small minority of that group of patients was the Denis Browne mechanical hand required, when it was used principally to overcome persistent equinus deformity. The criteria used to gauge a satisfactory result were: dorsiflexion of the foot up to and above the right ankle; absence of varus deformity in the heel and forefoot; correction of the internal rotation deformity of the whole foot; and a normal gait. In the group of patients with a poorly developed heel, an unsatisfactory result had been achieved by manipulation alone in all 17 cases. The results were unsatisfactory because of the presence of a rocker foot, with prominence of the cuboid and persistent varus deformity of the heel and forefoot. The Denis Browne mechanical hand had a very limited place in the management of those cases, because it tended to accentuate the prominence of the cuboid. While manipulation was a necessary preliminary form of treatment in that group, it was obvious that further operative treatment would be required to restore a plantigrade foot. In the group of short, squat feet, the results were unsatisfactory in two out of three cases because of the persistent equinus deformity. That should respond to manipulation by the Denis Browne mechanical hand, so that a plantigrade foot could be expected to be achieved.

Dr. Schlicht, in conclusion, emphasized that the diagnosis of *talipes equinovarus* had to be made immediately after birth, and that treatment should be commenced in the first 24 hours. That treatment, in the initial period, should be by manipulation and splintage in the manner outlined in the film. Finally, Dr. Schlicht made acknowledgement to Dr. Douglas Stephens for his enthusiasm and help in the preparation of the paper, and to the Photographic Department of the Royal Children's Hospital for the making of the film shown.

DR. M. CLARKE said that on a recent visit he had found that Denis Browne used the "mechanical hand" only infrequently, and that a high incidence of relapse had led to the substitution of operative measures.

DR. D. STEPHENS said that the mechanical hand was of great value in treating relapses in patients aged up to 12 years, and he was sure that its use avoided the necessity for operation in many cases, and produced a more mobile foot.

Testicular Infarction in Infancy.

DR. R. MYLIUS read a paper by Dr. J. SLOMAN and himself entitled "Testicular Infarction in Infancy: Its Association with Irreducible Inguinal Hernia" (see page 242).

DR. D. STEPHENS said he thought that the case review led to important conclusions in the management of inguinal hernia in infancy, and that the fate of the testis should be included in the consideration of such cases, in that early operation was advisable, and control by a truss should be instituted until that was effected.

DR. R. HOWARD questioned some points of terminology, and noted a curious reluctance to use the term "strangulation", which he preferred to "incarceration". He said that he thought the site of obstruction was the external inguinal ring, and that as no inguinal canal was present at that age, he could not accept a site of obstruction referred to as "mid-

way between the internal and external rings". He could not see how the coverings of the cord could be blamed for the obstruction, as these were not inelastic in his experience. Dr. Howard also thought that some of the damage to the testis might have resulted from over-enthusiastic pressure on the testis during taxis, or from direct vascular damage during dissection of the sac.

Dr. Mylius, in reply, said that the term "irreducible hernise" had been used in his cases to cover those hernise subsequently reduced after admission of the patient to a surgical ward. Dr. Mylius said that in some of the cases treated by Dr. Stephens, it had been apparent that reduction of the hernia was impossible even after the external ring had been opened, and that longitudinal incision of the coverings of the spermatic cord had been required before success was achieved.

The Surgical Anatomy of the Anal Canal.

DR. R. FOWLER, JUNIOR, read a paper entitled "The Surgical Anatomy of the Anal Canal".[1] He said that certain clinical and post-mortem appearances of the anal canal in childhood did not accord well with the generally accepted teachings on the anatomy of that region. It had been necessary, therefore, first of all, to investigate whether there was any fundamental difference between the anal anatomy in children and in adults. However, on reviewing the literature, he had found that existing accounts of the adult anatomy were bewildering and contradictory in a great many respects. He had, therefore, during the past two years, reinvestigated the surgical anatomy of the anal canal, in both children and adults, by a combined anatomical, embryological and clinical study. As a result, no significant difference had been found between childhood and adult anatomy; but several standard surgical teachings of the past twenty years had been discredited, foremost among those being Hilton's line, the anal intermuscular septum and *corrugator cutis ani*. Furthermore, he regarded "ano-cutaneous" and "muco-cutaneous" as unsatisfactory descriptive terms of reference, because of the confusing ways in which they had been applied by various writers.

Substantially correct accounts of the anatomy had been given by Continental anatomists of the past century, especially in regard to the disposition of the longitudinal muscle layers, but those earlier accounts had up till now lacked clinical correlation. The major aim of his research had been to try to provide such correlation.

Dr. Fowler defined the anal canal as extending between two readily palpable muscular landmarks—the ano-rectal ring above and the anal intermuscular groove below. He said that that groove owed its existence simply to the mass of the sphincter muscles on each side of it, and not to the pull of any specialized structures or of the so-called anal intermuscular septum. In life, the relaxed external sphincter lay below and lateral to the anal orifice, but when contracted it surrounded the orifice to elongate the canal caudally. He had found, both by histological examination and by dissection, that the descriptive subdivisions of the external anal sphincter into subcutaneous superficial and deep parts were artificial. He had found that the only epithelial landmarks of much value were the upper and lower borders of the pecten and zone of hairless stratified squamous epithelium lacking sweat or sebaceous glands. The lower border of the pecten corresponded in the main with the anal intermuscular groove, and was marked by an irregular line of transition to the prominent follicles of the true perianal skin. Pathological distortion or prolapse of the mucosa might displace those borders in relation to the muscles, but of the two, the upper showed a relative degree of fixity. In hæmorrhoidal or rectal prolapse, that fixity could produce a visible groove, which had previously been confused with the palpable anal intermuscular groove. That tethering of the mucosa at the level of the anal valves and crypts was due to fibro-muscular insertions from the *levator ani* and from the longitudinal muscle strata of the anal wall.

Dr. Fowler emphasized the complexity of the longitudinal muscle layers and their offshoots, which provided a key to the whole anatomy of that region. He said that fibres passing obliquely downwards and medially through the internal sphincter from the conjoined coat formed a fibro-muscular layer on the medial surface of the sphincter, called the *musculus submucosæ ani*, which reached its maximal development just above and below the anal valves. Differences of opinion had been expressed as to the nature of the epithelium lining the canal, but he had found an abrupt change at the valves from the stratified squamous epithelium below to stratified columnar epithelium overlying the anal columns. That columnar epithelium lacked goblet cells or intestinal glands, but above the level of the anal columns true rectal mucosa lined the upper reaches of the canal.

Dr. Fowler went on to say that a common finding in clinical work was the collection of blood or pus in the perianal space. The existence of that space had never been adequately explained by the standard teachings, but its nature was readily understandable from a consideration of the terminal insertions of the longitudinal coat. The conjoined coat ended by dividing into approximately six to twelve fibro-elastic septa or "coat-tails", which pierced the subcutaneous fibres of the external sphincter to be inserted into the perianal skin. Those "coat-tails" were largely responsible for the characteristic puckering of perianal skin, to which the tone of the external sphincter contributed in part. Clinically, perianal abscesses or hæmatomata occurred in the interstices of those "coat-tails", and in that zone of puckered perianal skin, which distinguished them from ischio-rectal collections. It was the longitudinal "coat-tails" which limited their lateral or upward spread.

DR. M. KENT asked what technique had been used in the dissections on which the paper was based.

Dr. Fowler, in reply, said that the material consisted of 16 pelvic dissections, eight from adults and eight from infants. The specimens were fresh and unfixed with formalin, and muscle tissue in them could be identified with the naked eye. A perianal incision had been deepened layer by layer, to display the concentric muscular investments.

DR. R. FOWLER, SENIOR, asked why the puborectalis appeared as a separate entity in the diagram shown, and not as continuous with the *levator ani*, of which he thought it was an integral part.

Dr. Fowler, in reply, said that two entities could be seen in dissections—a pelvic diaphragm composed of *levator ani* muscular and aponeurotic fibres, and beneath that a bundle of fleshy muscle fibres attached to the pubis anteriorly and enclosing the anus. Its function was sphincteric, and separate functionally and anatomically from that of the *levator ani*.

Minor Surgical Conditions of the Anus and Perineum.

DR. D. STEPHENS read a paper entitled "Minor Surgical Conditions of the Anus and Perineum" (see page 244).

DR. R. FOWLER, JUNIOR, said that *ectopia vesicæ* was almost always complicated by rectal prolapse, and that transplantation of the ureters produced a hitching-up effect, which often controlled the prolapse.

DR. P. JONES said that Denis Browne considered rectal prolapse, not as a disease, but as a social accomplishment, which, while not psychogenic in origin, might be perpetuated as an attention-seeking device. The successful results of injections or sutures might simply be due to a re-evaluation by the patient of his symptom and its cost.

DR. M. CLARKE thought that a review of out-patient cases of rectal prolapse would be worth while, for while it was widely held that the condition was self-limiting, it might be simply a matter of the parents' becoming tired of coming to the hospital, and not of disappearance of the prolapse.

DR. T. MADDISON asked whether vulval adhesions required separation in the absence of symptoms, as he understood they separated spontaneously with time.

Dr. Stephens, in reply, said that labial adhesions became tougher and thicker as the infant grew older, and he was sure that the separation should be performed in infancy. In addition, dysuria or enuresis could occur in untreated cases. It was important to prevent recurrence of the adhesions after separation by the use of digital pressure to keep the edges apart until epithelialization had occurred. That might take several months.

DR. J. MATTHEWS asked Dr. Stephens if he had seen any cases of piles requiring treatment in childhood.

Dr. Stephens, in reply, said that in only one case of piles (an intraabdominal vascular anomaly for which an anastomosis between the inferior mesenteric vein and the inferior *vena cava* was performed) had local alcohol injection been required finally to close the submucous veins.

PROFESSOR A. WEECH said that it was his practice to separate melæna into "explosive" and "trickling" varieties, and that the latter were normally due to local anal causes. "Explosive" melæna was usually associated with more serious conditions, such as peptic ulceration in a Meckel's diverticulum. Recently he had seen a case in which there had been an exsanguinating melæna, due to a

[1] This paper is being published in full in *The Australian and New Zealand Journal of Surgery*.

large pulsating artery in a small rectal polypus. Even the best classifications were not infallible.

Dr. Stephens emphasized the fact that rectal polypi should be removed by diathermy or ligature of the stalk.

DR. R. HOWARD asked whether it was the teaching at Great Ormond Street that post-anal dimples should as a routine be excised in childhood.

Dr. Stephens, in reply, said that most post-anal dimples became shallower as time passed, and that there was no indication for their removal.

A Pædiatrician Looks at Child Behaviour Problems.

On Wednesday, March 13, at 8 p.m., PROFESSOR ASHLEY WEECH gave the Henry Douglas Stephens Memorial Lecture. Professor Weech was introduced by DR. J. F. WILLIAMS, President of the Pædiatric Society of Victoria, who said that the Society was very proud to have such a distinguished visitor to mark the Jubilee of the Society and to deliver the Henry Douglas Stephens Memorial Lecture for 1957.

Professor Weech, in his opening remarks, said that he had heard the late Harry Douglas Stephens referred to as "the brightest star in the firmament", and he felt highly honoured by the invitation to give that particular lecture.

Professor Weech commenced his lecture by outlining three types of behaviour to be seen in the newborn infant. The first was reflex in origin and as fully mature as in the adult—for example, the yawn and sneeze. The second was imperfect, but already preshadowed later skills, such as walking. The third group, which included the suspension-grasp reflex and swimming movements, might reflect a phylogenetic background. Those reflexes were propagated through the brain stem and were probably independent of the cortex, for it was cortical inhibition which eventually led to the disappearance of such phenomena as the Moro reflex. Such basic reflex activity had been referred to in psychoanalytical terms as the "id". At the age of approximately one month the cerebral cortex could be said to begin functioning, as judged by eye-movements, not at first fully coordinated, but capable of following a moving object. There was no certain way of distinguishing such movements from light reflexes independent of volition, but by the age of three months movements of hand and eyes were beyond doubt initiated in the cortex and were both voluntary and pleasurable. New sensations were progressively explored, and by six or seven months the infant became aware of its environment. At that time, or very soon after, the infant developed "ego-needs", for its new accomplishments were "cute" and an admiring family was to hand. While the demands of the ego became stronger, traits acquired later were less appealing, and possibly undesirable. By the age of two years disciplinary measures had taught the child that it was sometimes necessary to give up some benefits in order to acquire others, and the ego-needs were becoming modified. By the age of five years another factor began to play a part in determining behaviour, that of peer relationships. The urges of the ego were modified by the need to conform, and that continued for many years—for example, in the high school age, when matters of dress assumed importance. That desire to conform was a most important modifying factor, for its absence was a cause of juvenile delinquency. Professor Weech said that he recognized yet another phase of development, which he called the age of "dependent sophistication", and in which a multitude of questions were asked of parents by adolescents about to leave home for a time—for example, on going to college. They reflected an anxiety to conform in a more sophisticated social context away from home. He noted that some adults never progressed beyond that stage, and that full maturity was achieved only when all the motivating factors fell into place and a proper balance between them was achieved.

Professor Weech went on to say that so far only the child had been considered; but the parents and particularly the mother, naturally played an important part in the evolution of behaviour. In infancy there was complete dependency, and all needs were supplied by the mother. As time went on the child was able to do more and more for itself, until independent maturity was reached with a complete reversal of roles. Professor Weech said that the seeds of conflict were inherent in that situation and in its evolution. Normally, adjustments were made to the changing relationships, but there were often factors which tended to make the mother over-solicitous, such as hardship during her own childhood, the loss of a previous child, or a delay of perhaps years in achieving pregnancy. Sibling and parental rivalries were other features of the environment which could affect a child. A pædiatrician who was content to confine his activities to a physical examination and, having found nothing abnormal, was bluffly reassuring, had not even begun to understand the problem, and had solved nothing.

Professor Weech outlined some of the difficulties encountered in food refusal and the ludicrous reactions which it could produce. A guiding principle in its correction was that the child must not know by a sigh, by an action or by a spoken word that the mother cared whether or not the meal was eaten. That he termed "conscientious neglect", and he found it a valuable method of dealing with anorexia and with other behaviour problems. He said that it was possible to determine which activities should be actively encouraged and which treated with conscientious neglect by asking the question: "Is this type of behaviour, if persisted in, likely to make the child a better citizen?" In general, the physiological activities such as eating and bowel training did not fall into the affirmative category.

Professor Weech pointed out that the phenomenon of regression could be seen in every growing child during the course of the day. A six-year-old was likely to be embarrassed by displays of affection in the presence of his playmates, but might well show the characteristics of a two-year-old when tired out in the evening, and particularly by his many demands during the ritual of going to bed. Allowances had to be made for that regression, and consolation lay in the certain expectation that the child would regain his mental age when fresh the following morning. With regard to active encouragement, Professor Weech said that he thought no one was immune to flattery provided that the flattery was appropriate. The individual must be carefully studied to find what he considered praiseworthy, and that would lead to acceptable means of satisfying the ego-needs. The whole process of bringing up a child might provide, for the parent, the greatest degree of worry, yet the source of greatest joy and satisfaction that man could experience.

Meningitis in Melbourne due to E.C.H.O. Virus.

DR. J. FORBES, from the Queen's Memorial Infectious Diseases Hospital, read a paper prepared by DR. A. FERRIS and himself on "Meningitis in Melbourne due to E.C.H.O. Virus" (see page 246).

DR. M. POWELL said he considered that the degree of prostration and the severity of the headache were more marked in virus meningo-encephalitis than in poliomyelitis, and those were therefore important distinguishing features.

Dr. Forbes agreed with Dr. Powell that severe cases of that disease presented the feature he described, but thought the differentiation from poliomyelitis could not be made on clinical grounds alone. The absence of paralysis had been the all-important differentiating feature.

DR. MONA BLANCH asked whether the disease could be diagnosed in the absence of meningism.

Dr. Forbes said that cases without neck stiffness could occur.

DR. M. ROBINSON asked whether splenomegaly had been noted in any cases. He had seen several patients with a similar illness who showed that feature and sometimes enlarged lymph glands.

Dr. Forbes said that in one or two cases the spleen had been palpable, and in an occasional case there was a vague erythematous rash.

DR. E. ROBERTSON said that if he saw such cases he would probably label them lymphocytic choriomeningitis.

DR. H. MCLORINAN commented that no true cases of lymphocytic choriomeningitis had ever been recorded in Melbourne.

DR. E. KEOGH said it seemed probable that that syndrome constituted a new disease. If there had not been a low incidence of paralytic poliomyelitis at the time, it might not have been recognized. The new disease could not be distinguished from non-paralytic poliomyelitis, and the diagnosis could be made only when the virus was isolated. One could then give a good prognosis. The close cooperation between laboratory workers and clinician had been the important feature in the recognition of the disease.

DR. P. L. BAZELY said that only two similar epidemics in Britain had been described. The present epidemic, however, was the first that had appeared in the almost complete absence of concurrent poliomyelitis. When the first Salk report was published, one had been struck by the fact that the vaccine appeared to be effective in preventing paralytic poliomyelitis, but not the non-paralytic form. Increasing work with tissue cultures showed that other agents were at work. More than 20 such agents had been identified and

numbered and were known as the E.C.H.O. viruses. Of those, only three had so far been associated with human encephalitis. Type IX had been identified with one of the Coxsackie group of viruses. The British epidemic had been associated with a characteristic pink blotchy rash, most marked on the face and neck and the upper part of the trunk. Dr. Salk had said that since any central nervous system virus infection was undesirable, efforts should be made to prevent it. Vaccines could be prepared from the E.C.H.O. viruses and possibly added to the Salk vaccine. Promising work was in progress at the Commonwealth Serum Laboratories, and such a combined vaccine would probably have been prepared within a year.

Meconium Peritonitis.

DR. L. SLOAN discussed four cases of meconium peritonitis seen at the Royal Children's Hospital since 1954. He said that meconium peritonitis resulted from extrusion of meconium into the peritoneal cavity following perforation of a portion of the gastro-intestinal tract during intrauterine life, at the time of delivery or in the early neonatal period. The constituents of meconium were chemically highly irritant in nature, but sterile. However, bacterial contamination might occur shortly after birth. Many of the cases of meconium peritonitis were secondary to intestinal obstruction caused by such a congenital lesion as intestinal atresia, volvulus or meconium ileus. However, about 50% of the cases were spontaneous—no demonstrable cause for the perforated bowel could be ascertained at surgery or at autopsy, and frequently, too, the site of perforation was not detected, presumably owing to healing. Some examples of that "spontaneous meconium peritonitis" were attributed to the birth trauma, especially in the presence of a difficult labour and marked abdominal distension. A review of the literature showed that intrauterine rupture of the intestine might manifest itself only as an incidental finding, and was not necessarily fatal. Meconium peritonitis, which occurred at delivery or in early neonatal life, was invariably fatal, without immediate surgical intervention. The operations performed had varied from simple drainage of the abdomen or suture of the perforation to complicated resections and anastomosis. Calcification might develop rapidly in meconium free in the peritoneal cavity, and the presence of irregular plaques of calcium seen radiologically, as described by Neuhauser, was highly suggestive of intrauterine perforation of the bowel. Intraperitoneal calcification was noted in all four of the cases at the Royal Children's Hospital, Melbourne. They were presumably therefore all examples of intrauterine perforation of the gut; but each case demonstrated a different mode of clinical presentation. Dr. Sloan discussed in some detail the case of a patient under the care of Dr. V. Collins, and then briefly discussed the three other cases he had noted since 1954.

The first case was that of a full-time male baby born at the Geelong Hospital. The mother was a *primipara*, and the pre-partum history had been complicated by toxæmia of pregnancy and gross anæmia. Hydramnios had been noted in the terminal stages. At birth, the baby weighed six pounds nine ounces. He had generalized œdema, and the abdomen was much distended. For the first 10 days of life he was cared for at the Geelong Hospital. Physical examination on his admission to the Royal Children's Hospital on the tenth day of life revealed him to be a small infant who weighed six pounds four ounces. The abdomen was distended with signs of ascites, and the liver was palpable to two fingers' breadth below the right costal margin. Plain X-ray films of the abdomen showed numerous circumscribed plaques of calcification as well as fluid in the peritoneal cavity. As the infant was clinically well, taking feeds satisfactorily, not vomiting and having relatively normal bowel actions, no abdominal paracentesis was undertaken. It was thought that the bowel perforation had sealed at or before birth, and that no secondary bacterial invasion had occurred. The patient was discharged from the hospital at the age of six weeks, weighing six pounds fourteen ounces. Hepatomegaly was still evident. He was readmitted to the hospital when aged 12 weeks because of failure to thrive. Physical examination on this occasion showed him to be a healthy but thin baby weighing eight pounds eight ounces. The temperature was 101° F., the abdomen was slightly protuberant, and three fingers' breadth of firm liver was palpable below the right costal margin. Under observation in the ward he continued to lose weight, to pass numerous pale yellow relaxed stools and to have persistent pyrexia. Several attempted stool cultures gave negative results, though culture of staphylococci was not attempted. No clinical cause for his fever was ascertained, but a white cell count showed moderate leucocytosis. Radiographic examination of his moderately distended abdomen showed a "ground glass" appearance suggesting the presence of fluid, but on abdominal paracentesis, none was obtained. An empirical trial with penicillin brought about a temporary subsidence of the fever, and later therapy with tetracycline controlled the pyrexia. However, the "diarrhœa" and weight loss continued, and eventually a laparotomy was performed on the child at the age of 16 weeks by Dr. R. Howard. This revealed multiple adhesions and a subacute small-bowel obstruction. Numerous calcified amorphous plaques were removed. The liver was moderately enlarged, but normal on macroscopic examination. The operation with division of the adhesions caused a remarkable change in the infant's condition. The diarrhœa ceased, and he began to gain weight steadily. On his discharge from hospital he was aged four and a half months and weighed eight pounds six ounces. The fever, which responded to penicillin and tetracycline, remained unexplained. The hypothesis of a staphylococcal bowel infection proximal to the obstruction seemed likely. Dr. Sloan said that the patient had been reviewed at the hospital again at the age of 13 months. He weighed 26 pounds six ounces (four times his birth weight). He looked extremely well, no dietary upsets had been encountered and his bowel actions were normal in frequency and consistency. No clinical abnormality was detected.

The second patient had been admitted to the hospital under the care of Dr. H. Williams at the age of 12 hours. He had marked abdominal distension and gross œdema and discoloration of the scrotum. Radiological examination revealed a fluid level in the peritoneal cavity, with gas under the hemidiaphragms. Calcification was present in the lower part of the abdomen and the scrotum. At laparotomy (Dr. D. Stephens), large amounts of meconium-stained fluid were removed. No intestinal obstruction or perforation of the gut was found. The baby made an uneventful recovery, and satisfactory progress had since been maintained.

The third patient had been admitted to hospital at the age of seven weeks with signs and symptoms of acute intestinal obstruction after an apparently normal neonatal period. Laparotomy (Dr. D. Stephens) revealed a previous meconium peritonitis. Attached to the omentum were numerous small calcified particles, and around one of those pieces of meconium there was a knot of bowel with many adhesions. Where one portion of ileum was densely adherent to another coil of ileum, a small perforation was found. The adhesions were divided and portion of the ileum was resected, an end-to-side anastomosis being performed. The patient made a good recovery after operation, and had since thrived well.

The fourth patient was a female infant, who had been operated on by Dr. W. Forster on the second day of life for jejunal atresia and meconium peritonitis. X-ray examination of the abdomen had shown numerous coils of dilated small bowel, with fluid levels and fine calcification present in the abdominal cavity. The atretic area was by-passed by an end-to-side anastomosis, but after operation the patient failed to thrive. At the age of three and a half months, a further laparotomy revealed a subacute small-bowel obstruction due to numerous adhesions. The baby died suddenly one week after that operation, and autopsy failed to establish any cause for her sudden death.

In summarizing, Dr. Sloan said that he had reported four cases of meconium peritonitis which had been seen at the Royal Children's Hospital in the past two and a half years—an incidence which seemed much higher than that reported in the literature. He had further described two patients who had presented with comparatively late complications of that condition, and he had been unable to find in his reading any other such comparable case reports.

DR. J. COLEBATCH asked what was the incidence of fibrocystic disease of the pancreas in the condition described.

Dr. Sloan said that in a series of 45 cases reported, associated fibrocystic disease of the pancreas was present in five.

DR. M. CLARKE asked whether the calcium deposits were permanent.

Dr. Sloan said that in the literature he had seen no reports of follow-up investigations to determine whether the calcium deposits were permanent. In the first case described no deposits were apparent at the age of 13 months, but the operation might have been responsible for that.

Bacterial Flora of the Small Intestine in Relation to Steatorrhœa.

DR. CHARLOTTE ANDERSON said that the studies to be described were just a facet of a wider plan of work in the

field of intestinal malabsorption. In many of the past writings on cœliac disease, the idea that intestinal organisms played a part in producing some of the symptoms had often been discussed by such people as Herter and Kendall, but bacterial observations of stools only had been made. More recently, Frazer had held that intestinal bacteria, normally confined to the lower reaches, invaded the upper part of the small intestine in large numbers, and the bacterial invasion played a part in the development of the malabsorption seen in adult idiopathic steatorrhœa, sprue and cœliac disease. Adequate proof for the suggestion had not been published, but the presence of an abnormal small bowel flora had been accepted to explain some of the vitamin deficiencies seen in those diseases.

Dr. Anderson said that the work she was about to describe was an effort to study the bacterial flora actually present in disease states associated with steatorrhœa. Reliable information on the normal bacterial pattern of the small intestine was that published by Cregan and Hayward, of the University of Melbourne Bacteriology Department. They had shown that when the adult human intestinal tract was healthy, the small intestine was not colonized by a resident flora. Such organisms as were found there were so few in number that they had to be regarded as transient contaminants passing through with the ingesta. The authors had also shown that neither a low gastric acidity nor the presence of a profuse flora in the stomach necessarily led to the development of a resident flora in the small intestine. The bacteriological examinations in the work under discussion had been carried out by Miss Langford, and the methods of study were based on those worked out by Hayward. Specimens for bacteriological examination had been obtained in the latter studies by direct needling of the bowel at certain levels during operation in adult patients. In the present studies the majority of specimens were obtained after intubation. For that a double-lumen tube with balloon was constructed so that it could be passed through the nose of small children. The tube was passed into the stomach, and then with the help of fluoroscopy manœuvred into the duodenum. The balloon was then inflated, and some hours later the patient was fluoroscopically examined again to ascertain as far as possible the level the balloon had reached. Specimens were taken by suction with a sterile syringe from the mouth, stomach, duodenum and small bowel in each patient.

Bacteriological examination of specimens was carried out both quantitatively and qualitatively. A plating technique, with the use of a drop of the specimen fluid stroked around the plate in a constant manner, was employed for the quantitative assessment. The degree of growth in various areas of the plate was recorded as "±", "+", "++" and "+++". A resident growth in the site sampled was recorded if the growth was "++" or more. Less growth than that was regarded as representing transitory organisms, not multiplying at the site sampled. Qualitative assessment was made by a detailed identification of all organisms present. They were divided into two groups, those considered to be of oral type and those of fæcal type. The former were mainly Gram-positive varieties commonly obtained in the mouth. The latter were mainly Gram-negative types and anaerobes commonly found in fæces. When intubation techniques were used, a resident fæcal flora was the only type considered abnormal, as oral-type organisms could be carried down with the tube.

Dr. Anderson summarized the clinical material and results in six groups. She said that the presence or absence of steatorrhœa was always proved by fat balance. The groups were: (i) A group of seven children operated on for elective procedures such as interval appendicectomy. Specimens were obtained from several levels by needling, and the injection and withdrawal from the bowel of Ringer's solution. Results for that group revealed that the intestine of the child showed the same relative sterility as that of the adult. (ii) A group of 13 patients who did not show steatorrhœa or anæmia or any gastro-intestinal symptoms at the time of operation. Specimens were obtained by intubation, and in only four of those cases was a resident fæcal-type flora found in the small bowel. (iii) A group of 14 patients with proved untreated cœliac disease. Specimens were also obtained by intubation, and in only three cases was a resident fæcal-type flora present in the small bowel. (iv) A group of seven patients with fibrocystic disease of the pancreas, studied in a similar fashion, only one of whom was found to have a resident fæcal type of flora in the small bowel. (v) A group of four patients with congenital obliteration of the biliary system studied by both intubation techniques and direct sampling at operation. None of these were found to have any abnormal flora by either method. This gave a check on intubation methods. (vi) A group of 11 patients, all of whom had steatorrhœa from malabsorption at the time of investigation, but in whom the ætiology of the malabsorption varied considerably. Six of them had a normal pattern of flora. Those included a patient with malrotation of the gut, two patients with hepatitis and steatorrhœa, one with *Giardia lamblia* infestation, one with malnutrition, and one who had had a partial gastrectomy. The five patients with a resident fæcal flora in the small gut included two babies who had failed to thrive, had diarrhœa with steatorrhœa, and were later both shown to have congenital renal anomalies, with gross infection in the renal tract. The other three patients were children, who were shown at operation to have anatomical abnormalities of the small bowel, resulting in disordered motor function with probable stasis of intestinal contents.

Dr. Anderson said that the study of those six groups of patients showed that no abnormal flora was constantly present in cases of cœliac disease or malabsorption from other causes, and that therefore the idea that flora played a part in the development of the symptoms of malabsorption of foodstuffs and vitamins in those conditions could not be upheld. Study of those groups also indicated some factors which could be discounted as contributing to the sterility of the small bowel. The groups of patients with no pancreatic secretion (as in fibrocystic disease of the pancreas), and no bile entering the gut (as in congenital obliteration of the bile ducts) indicated that neither bile nor pancreatic secretion was necessary to maintain sterility.

DR. D. SCHLICHT asked whether, in all the cases of neonatal obstruction now being studied, there was abnormal flora above the site of obstruction.

Dr. Anderson, in reply, said that only a few cases had yet been studied, but in all fæcal flora had been found above the site of obstruction.

PROFESSOR A. WEECH described an epidemic of steatorrhœa which had occurred in a Cincinnati family two years previously. Study of that had led to the conclusion that virus infection in the gastro-intestinal tract could alter the absorption of food from the gut.

Dr. Anderson referred to two cases of non-icteric hepatitis with steatorrhœa, which had resolved completely.

Bronchiectasis in Children: Its Multiple Pathogenesis.

DR. H. WILLIAMS read a paper on "Bronchiectasis in Children". He said that ever since Laennec in 1818 had described the clinical features and morbid anatomical changes of dilated bronchi and carnified lung tissue in four patients, there had been considerable controversy concerning the ætiology and pathogenesis of bronchiectasis. Laennec had attributed the bronchial dilatation to repeated distension of the bronchi from excess mucopurulent sputum, while Corrigan in 1838 had considered that traction on the bronchi by fibrous tissue was the important agent. Stokes in 1882 had considered that bronchiectasis was due to weakening of the bronchial walls from structural damage due to inflammatory changes. That theory was largely accepted until the work of Hedblom (1931), Anspach (1934) and Lee Lander and Davidson (1938) demonstrated a close association of pulmonary collapse and bronchiectasis, and they put forward the view that the disease was primarily due to pulmonary collapse and that bronchial dilatation was due to many secondary mechanical factors.

Dr. Williams then pointed out that the experienced clinician was often puzzled at the great diversity of clinical features in cases of bronchiectasis. The mode of onset, the symptoms, the course of the disease, and the presence of sinus infection and pulmonary collapse were extremely variable in different cases. He then asked what was the explanation of the diversity of clinical and pathological features and of the theories of pathogenesis. Was it only that there were all grades of severity of a single disease? Or were there several separate diseases, each with a definite clinical pattern and pathology, but all with the one common morphological feature of bronchial dilatation? He said that in 1952, Whitwell from a morbid anatomical study had separated three pathological entities—atelectatic bronchiectasis, saccular bronchiectasis and follicular bronchiectasis. Whitwell attributed atelectatic bronchiectasis to collapse of a lobe or a segment from bronchial obstruction due to enlarged tuberculous or pyogenic lymph glands. Saccular bronchiectasis was considered to be due to a mural inflammation of medium-sized bronchi with obliteration of much of the peripheral bronchial tree. Follicular bronchiectasis was due to a destructive mural bronchitis, bronchiolitis and interstitial pneumonia.

Dr. Williams said that for the past eight years the Clinical Research Unit had been following a large number of children from the initial stages of their bronchiectatic lesions. The

work confirmed Whitwell's view that there was a number of distinct disease entities causing bronchiectasis. He submitted the following classification: (i) subacute pyogenic pulmonary collapse; (ii) chronic diffuse non-specific bronchiolitis and interstitial pneumonia; (iii) fibrocystic disease of the pancreas; (iv) primary pulmonary tuberculosis; (v) congenital malformations of the bronchial tree; (vi) miscellaneous lung infections. He said that he did not intend to discuss the last four groups, as those lesions had been well documented by a variety of workers. Each had a distinct pathology and clinical features and ran a different course. He would discuss the first two entities, subacute pyogenic pulmonary collapse and chronic non-specific bronchiolitis and interstitial pneumonia.

Dr. Williams presented the details of 37 patients with subacute pyogenic collapse; all were shown to have bronchial dilatation in the affected lobes. There was a wide variety of infections which were responsible for the pulmonary collapse, but non-specific respiratory tract infection was the commonest, then pertussis and measles. Bronchial dilatation disappeared completely in 16 of the patients when the infection had resolved and the lung reexpanded, but became permanent in seven with failure of resolution. All intermediate grades of bronchial dilatation were observed in 14 patients according to the degree of failure of resolution. Dr. Williams said that three factors were important in determining whether resolution was complete or incomplete or whether it failed. Those factors were the duration of the lesion, the adequacy of chemotherapy and physiotherapy and the age of the patient. He said that that type of bronchiectasis represented approximately 10% of all types of bronchiectasis, and that prevention of permanent bronchiectasis of that type should be possible in many patients by early diagnosis and treatment.

Dr. Williams then went on to discuss a group of 57 patients who had developed bronchiectasis following non-specific infective bronchiolitis and interstitial pneumonia. The distinctive clinical features in that group were a chronic cough, nasal discharge and attacks of fever, which commonly occurred in infancy. In approximately 75% of cases the disease developed insidiously, while in the remainder it followed an attack of bronchopneumonia, pertussis or morbilli. Pulmonary collapse was an inconstant feature in that group of cases, whereas it was a constant feature in the preceding group. In that group there was a significant familial incidence of bronchiectasis. There was also a considerable variation in the extent of the lesions and the severity of the symptoms; some patients had generalized bronchiectasis, others patchy lesions, while others again progressively developed new lesions over a period of some years. Treatment was very difficult in that group, as chemotherapy could be used only empirically, since it was uncommon for a pyogenic organism to be isolated from those patients in the early stages of their disease. Furthermore, postural coughing and physiotherapy were impracticable for most of those very young infants.

DR. JUNE HOWQUA asked whether, in the group with bronchiolitis and interstitial pneumonia, bronchospasm and attacks of wheezing were seen, as in adults.

Dr. Williams, in reply, said that he did not think that that condition was related to allergic bronchitis. Infants with diffuse bronchiolitis did wheeze, but that was owing to excessive secretion and not to bronchospasm.

DR. J. COLEBATCH asked whether, in the non-specific bronchiolitis group, there was œdema of the nasal or bronchial mucosa.

Dr. Williams, in reply, said that allergy was not a significant factor. Bronchoscopic examination revealed mucopurulent secretion only. Examination of nasal smears revealed no abnormal eosinophilia.

DR. M. POWELL was interested in the group of patients who had pulmonary collapse. He said that that was a very common condition, especially in allergic children, and he wondered how often it might be present without being recognized.

Dr. Williams, in reply, said that in the vast majority of cases areas of pyogenic collapse reexpanded. Various factors, such as poor posture and a weak cough, led to the collapse becoming subacute in some instances. Even in that group, however, many patients completely recovered.

Pneumoencephalography.

DR. E. GRAEME ROBERTSON read a paper entitled "Pneumoencephalography in Pædiatrics"; he first showed a cinematographic film illustrating the mechanisms involved in the flow of gas and the techniques used. Dr. Robertson said that to increase the reliability of the investigation and to decrease its attendant shock and discomfort, it was necessary to understand why gas entered the cerebral ventricles after it had been introduced into the subarachnoid space in the lumbar region. The posture of the neck directed gas into the *cisterna magna* and fourth ventricle, or into the ventral subarachnoid space. However, flotation could not explain a rapid interchange of gas and fluid through the narrow aqueduct of Sylvius. An analysis of the physical factors suggested that the lateral ventricles expanded to receive gas. The diffluent character of the brain would permit expansion, while an increase of pressure at the distal end of a column of fluid in the ventricular limb of a U-tube (the subarachnoid space constituting the other) could provide the motive force. An apparatus had been constructed which reproduced the physical factors, the cerebral hemispheres in that context alone being represented by a rubber diaphragm. The transmission of gas through that apparatus was demonstrated. Dr. Robertson said that many modifications of the apparatus were used for analysing different conditions; for example, it was possible to record pressures in "ventricles" and "subarachnoid space". The reasons for better filling of the ventricles when the head was erect, than when the neck was flexed, were analysed, and the compromises necessary to obtain the best ventricular filling were shown. Next, failure of ventricular filling was shown to be most often due to variations in the size of the *cisterna magna*, or the absence of peripheral delimitation. Subdural filling was a technical error due to introduction of gas into the subdural space at the point of the needle. Each of those failures was recognized after the introduction of five to fifteen cubic centimetres of gas, and rectification was demontrated.

Dr. Robertson said that the crux of the method lay in the use of radiography to provide a running commentary upon the progress of filling, and in directing the search to a region suggested by clinical examination. No standard technique existed, nor was any arbitrarily determined volume of gas used. Less than 10 cubic centimetres and more than 100 cubic centimetres might be used, depending upon circumstances. The filling of the ventricles and of parts or the whole of the subarachnoid space was next demonstrated. An easy method of filling the tips of the temporal horns and a view which allowed of direct comparison were shown. The technique for the full visualization of the ventricles and the subarachnoid space in the posterior fossa, and of the solid medulla, pons and mid-brain (both in profile and cross section) was shown by animated diagrams. In determining the extent and ramifications of suprasellar lesions, the anterior portion of the third ventricle was shown by taking lateral views with the head fully dorsiflexed after some 15 cubic centimetres of gas had been introduced in flexion. Then the suprasellar cisterns were filled and, lastly, the temporal horns in relation to the cisterns were pictured.

Dr. Robertson said that the method was the same for adults and for children, except that general anæsthesia was used for children. Since hypoplasia was frequent in children who were so investigated, filling of the subarachnoid space was of more value than in adults. A comparison of the uses of pneumoencephalography in the two age groups permitted of useful evaluation. The literature abounded with statements to the effect that no child with an obscure neurological lesion should be discharged from hospital without a pneumoencephalographic examination. Obviously, impressions of obscurity of the lesion would depend upon the skill of the attending practitioner. The findings might satisfy curiosity to some degree, but relatively few children benefited from the procedure. Further, diagnosis could only be conjectured from shadow pictures. The demonstration of atrophy might be regarded with satisfaction, but the cause of the atrophy was not shown, nor did the child benefit. Worse, the encephalographic diagnosis might be inaccurate. The appearances in the films were not a certain guide to the state of the brain under more normal conditions. It had to be realized that the brain was not a solid organ. Brain tissue was not compressible, but its shape might be altered. Even the size of the brain might alter, with compression of veins, œdema, etc. The very taking of an encephalogram altered the size of the ventricles. Initial filling of the subarachnoid space would favour widening of the sulci. Ventriculography might also produce varying appearances, and the encephalographic and ventriculographic pictures might be remarkably different. Dehydration might produce an atrophic appearance, and œdema of the brain the reverse. Rapid introduction of large volumes of gas and cyanosis due to a poor airway during anæsthesia might produce œdema. Finally, shadow pictures did not show the number of neurons, or their functional efficiency. The brain might be bulky and the neurons few, as in macrocephaly.

Statistical analysis showed that there was, on the whole, a correlation between the carefully produced encephalographic picture and the mentality of the child, but exceptions existed. Marked widening of the subarachnoid space might be shown in an early encephalogram, whereas a later picture might be normal. Hence, the procedure was not a certain guide to subsequent mental development.

Dr. Robertson then said that epilepsy commencing after adolescence was the commonest reason for the performance of pneumoencephalography in adults, since neoplasm was demonstrated sufficiently often to make the investigation desirable. In children, neoplastic causes of epilepsy were rare, since neoplasms of the cerebral hemispheres were rare, and those that occurred were usually of rapid growth. The patient presented with evidence of increased intracranial pressure or impairment of some cerebral function, rather than epilepsy of months' or years' duration, as in adults. Thus there was less justification for the investigation of epileptic children than of adults, for in children the epilepsy was almost always "centrencephalic", or associated with hypoplasia, as in "partial" or focal epilepsies. However, very occasionally a lesion was usefully demonstrated, as when a large atrophic cyst caused focal motor epilepsy. Opening the cyst into the ventricle and the subarachnoid space resulted in relief of the epilepsy. It was probable that excision of atrophic areas would be practised more widely in the future, but it was always to be remembered that the atrophy might be widespread, and that more than one epileptic focus might exist. Although commonly associated with damage to the temporal lobe at birth, attacks of temporal lobe epilepsy appeared to be less common in children than in adults. In all forms of epilepsy there might be a long period between the inflicting of the cause and the onset of the symptom, and a long latent period appeared to be particularly frequent when the epilepsy resulted from scarring or destruction in the anterior part of the temporal lobe.

Apart from epilepsy, the method was an important one in the early detection of neoplasms, at a time when that diagnosis could only be suspected clinically. In adults most of the neoplasms sought were above the tentorium. In children, supratentorial tumours were rare, while those below the tentorium were commoner. Further, many children were sent to the specialist with evidence of increased intracranial pressure. Dr. Robertson said that he was at variance with some Continental radiologists who used pneumoencephalography even when the pressure was raised. He believed that the risk of the investigation was increased under those conditions, even when gas was introduced before fluid was removed. Further, failure to fill the ventricles was likely, and full judgements could not be made from the parts of the subarachnoid space which might fill. The neurosurgeon effected better visualization, since he could introduce gas directly into the ventricles. He might fail to show the aqueduct and fourth ventricle adequately, and if necessary, when burr holes were available to relieve pressure, encephalography might be used. When there was no elevation of pressure and no obstruction to ingress of gas, the structures in the posterior fossa might be revealed much better by pneumoencephalography than by other methods. It was fortunate, in that context alone, that a high proportion of tumours in children were in the brain stem, and they usually presented before the intracranial pressure rose. The certain exclusion of a removable growth, and the decision to use deep X-ray therapy, were important in the conduct of such cases. The second type of growth in which pneumoencephalography was of value in children was another type best shown by that method—craniopharyngioma. The full investigation of unexplained visual failure in children might prevent the tragedy of a child's becoming blind from a neoplasm compressing the optic nerves or chiasma. It was less fortunate when a glioma of the optic nerve was revealed instead.

Dr. Robertson went on to say that the position of the block in hydrocephalus might be determined by pneumoencephalography and, what was still more important, only small volumes of gas need be used. Large volumes introduced directly into the ventricles or via the lumbar subarachnoid space might lead to deterioration of mentality or signs of focal cerebral damage. Those might be due to distortion of the thin layer of brain tissue, with interference with blood supply. Secondly, gas might remain in the ventricles for long periods, promoting tissue reactions. Infection might occur, especially in cachectic infants. The state of the ventricular system could usually be shown by some 10 cubic centimetres of oxygen introduced with the head well flexed.

Dr. Robertson then described the significant appearances and their indications in the following terms. (i) No gas might be seen in the usual position of the *cisterna magna*; that suggested obliteration of the cistern by adhesions. (ii) Gas might fail to enter the fourth ventricle from the *cisterna magna*, owing to obliteration of the vallecula or the foramen of Magendie. (iii) Gas might be seen in a small fourth ventricle, the shadow ending above, in pointed fashion, in the lower part of the aqueduct. That was certain evidence of stenosis of the aqueduct. Early recognition of that form was essential, because it might progress rapidly, and the short-circuiting operation of ventriculo-cisternostomy was a rewarding one. (iv) On the other hand, the gas, in passing through the fourth ventricle, might show it to be very large. The gas was then seen to rise into the dilated lateral ventricle, forming characteristic paired shadows near the inner table of the skull. When that was seen, the head was fully dorsiflexed to fill the subarachnoid space anteriorly, and again the level of the impedance might be recognized. In those cases, drainage of the lumbar theca into the peritoneal cavity might be successful. Most difficult to treat were patients with blockage of the *cisterna magna*. Sometimes the method served for analysis of developmental anomalies, some having been recognized which had not previously been described. The outstanding example of its value was in *craniocephalus parietalis*, in which analysis allowed an accurate forecast of the state of the membranes at the conjoint vertex. That was an arrangement much less fortunate than the complete dural separation found at operation in Dr. Oscar Sugar's case, which allowed skilful separation.

Finally, Dr. Robertson gave the following summary of a chapter from his book, "Pneumoencephalography", which set out the uses of pneumoencephalography in children in order of importance. (i) The investigation of the position of the block in hydrocephalus was its outstanding contribution. It gave more information than other methods and was very reliable. (ii) It permitted the investigation of the suprasellar region. The early recognition of a craniopharyngioma might allow of complete extirpation, which later would be impossible. It was reasonable to use the method when unexplained optic atrophy or visual failure existed. (iii) The method made it possible to recognize gliomatosis of the pons with certainty, thus eliminating the need for surgery. (iv) Macrocephaly might be recognized with certainty. (v) It was of value in the investigation of selected cases of epilepsy. Evidence of structural abnormality might be found in a considerable proportion of epileptics, but in most instances little good came of its detection. Clinical study, sometimes aided by plain radiographs of the skull and by electroencephalography, helped to select a limited number of cases which were worthy of encephalographic study, and in some of those cases cystic lesions, neoplasms and localized atrophy might be found. Undoubtedly some patients with removable lesions were missed because they escaped selection for encephalography. Without subjecting all patients to investigation there was no way of recognizing those, and the number was probably small. (vi) The method might make possible the diagnosis of neoplasms within the cerebral hemispheres when other positive evidence was lacking. (vii) It permitted the recognition of subdural collections in certain cases, especially when the diagnosis was uncertain and the collection was situated in an unusual site. (viii) Occasionally the information relating to developmental lesions which it provided assisted in treatment.

Aspects of Diseases Conveyed by Household Pets.

A symposium was held on the subject "Aspects of Diseases Conveyed by Household Pets".

DR. L. ALBISTON demonstrated from slides and diagrams features of infection by tinea or ringworm in dogs, cats and calves.

DR. R. KELLY discussed features of tineal infections in children seen locally, with special reference to *Microsporum canis* infection contracted from household pets. He said that tinea or ringworm of the skin and its appendages was an infection by fungi which were confined to the superficial dead horny layer of the skin and the keratinized portion of the hair. Of the clinical manifestations, *tinea capitis* and *tinea circinata* were very common in children, while affections of the nails, groins and feet, common in adults, were very uncommon in children. The great majority of cases of *tinea capitis* and *tinea circinata* seen at the Royal Children's Hospital were the result of infection from animals which might be household pets. *Tinea capitis* or ringworm of the scalp might be caused by the groups of fungi known as microspora and trichophyta. The microspora produced an ectothrix infection with fungus filaments occupying the shaft of the hair and a sheath of small spores. There were

ectothrix and endothrix groups of trichophyta, with the spores ensheathing the hair in the one instance and occupying only the shaft in the other instance.

Dr. Kelly then discussed the types of fungi which had been seen at the Royal Children's Hospital. The first was *M. canis*, which infected animals, particularly cats and dogs, and which might be transmitted to humans. That organism accounted for 90% of the cases of *tinea capitis* seen at the Royal Children's Hospital in the past ten months. It was also the commonest cause of *tinea capitis* in Sydney, New Zealand and California. *M. audouini*, which affected humans only, was rare in Melbourne, but was the commonest type encountered in the eastern United States and in England. It was more difficult to deal with than *M. canis* infection, because it persisted much longer and usually required treatment by X-ray epilation. In the next group *Trichophyton discoides* was usually contracted from cattle; it was seen in country children, and usually produced an intensely inflammatory kerion type of response. *T. sulphureum* was a purely human type of ringworm, like *M. audouini*. It was a common type of ringworm on the Mediterranean shores, and it had been seen particularly in migrant children from Malta and Greece. In contrast to the microsporum infections which terminated at puberty, *T. sulphureum* caused *tinea capitis* in adults as well as in children.

Dr. Kelly went on to say that the clinical features of *M. canis* infection were single or multiple rounded patches covered with short, broken off, lustreless hairs. Occasionally there might be individual infected hairs scattered through the scalp, which were detected by their fluorescence under Wood's light. *M. audouini* produced an identical clinical picture. *T. sulphureum* showed different clinical features, with polyangular patches of baldness and possibly a few scaling patches and perhaps a few short, broken-off hairs; it usually required X-ray epilation treatment. In a proportion which varied in different localities (5% of the Melbourne cases of *M. canis tinea capitis*) a kerion developed; it was a tender, elevated, erythematous, boggy swelling with multiple follicular pustules. The development of a kerion was associated with allergic sensitization to the fungus products, and it was an almost certain indication of spontaneous cure. No fungicidal treatment was necessary, and healing occurred in four to eight weeks. Usually regrowth of hair was complete, though in a few cases there might be permanent partial alopecia. Incision, of course, was useless.

Dr. Kelly then said that the diagnosis of *tinea capitis* was made on the clinical features and on the Wood's light examination, on the microscopic appearances of the infected hair and on culture. Examination of the suspected kitten under the Wood's light might show fluorescent hair in an apparently normal animal, and at the Royal Children's Hospital the suspected animal was brought to the clinic when possible and examined. With *M. canis* infection, domestic animals constituted the chief source of contagion. The commonest story was that the children had played with a kitten, frequently a stray kitten which had wandered into the yard, and after that they had developed ringworm on the scalp and frequently also on the trunk. A recent group of cases had occurred in a family of which the father had brought a kitten home to his five girls; the kitten appeared quite healthy, as was usually the case. All five children developed *tinea circinata* on the body, two developed *tinea capitis*, and his wife also developed *tinea circinata*. Puppies were a common source of infection, and might show bald or scaling patches. Barbers' clippers and combs might also transfer infection.

Dr. Kelly said that at the Royal Children's Hospital, the duration of the cases of *tinea capitis* caused by *M. canis* averaged 14 weeks, and spontaneous resolution of the disease occurred in that time. An occasional case had continued for nine to fifteen months, but those instances were exceptional. Widespread epidemics did not occur with *M. canis* infections. The duration was possibly too short to maintain an adequate human reservoir for transmission from human to human. The condition cleared spontaneously at puberty and was extremely rare in the adult, and that was believed to be due to the higher concentration of fungistatic fatty acids in the sebum after puberty. Infection took place, not by deposition of fungus on the tips or shafts of the hairs, but by development of infection in the horny layer of the scalp. The infection travelled along to the hair follicles and down on the surface of the hair, and then penetrated into the hair and grew in the hair substance. The fungus kept pace with growth of the hair. Treatment was conservative in almost all cases of *tinea capitis* due to *M. canis*. A fungicidal ointment was applied once or twice daily, and the hair was clipped to facilitate application of ointment to affected areas. The ointment did not eradicate the infection, as it could not penetrate to the keratogenous zone of the hair to kill the fungus; but it could kill surface fungus elements and reduce the dissemination of spores. Children might attend school if they wore a close-fitting cap which would prevent dissemination of spores to other children. If infection had persisted for over six months, X-ray epilation might be considered. That did not kill the fungus, but caused temporary atrophy of the hair papillæ, with hair fall and hence removal of all infected material. Thallium acetate, which also produced hair fall, was too toxic, causing hepatitis and peripheral neuritis in some cases. *Tinea circinata* was associated with *tinea capitis* in about 20% of the cases at the Royal Children's Hospital due to *M. canis*. Castellani's paint was an effective treatment for *tinea circinata*. In conclusion, Dr. Kelly said that cooperation was required between school medical officers, veterinary services and skin clinics for effective attack on that condition. Elimination of infected animals was of first importance, since a single animal might infect a number of individuals.

DR. MONA BLANCH drew attention to the danger of the association of dirt-eating children with dogs or cats or soil contaminated by them. She pointed out that *Toxocara canis*, the dog ascarid, could not complete its life history in man. Consequently the larvæ must migrate throughout the human body until finally they became surrounded by granulomatous tissue and died. The symptomatology of the resultant visceral *larva migrans* depended upon the degree of infestation and the organs chiefly affected. Dr. Blanch stressed the value of the examination of a blood film in the case of any child with vague ill health, fever, hepatomegaly or repeated respiratory infections. The larvæ being such a potent antigenic stimulus, a high degree of eosinophilia resulted if they were present in considerable numbers. That applied even more if the child belonged to an allergic family. The differential diagnosis was from eosinophilic leuchæmia (unknown under the age of 10 years), respiratory infections and eye disease. Larvæ had been found in eyes removed after a diagnosis of retinoblastoma had been made. Prophylaxis was simple; animals should be freed from worms and dirt-eating children prevented from having access to their excreta. Treatment consisted in supportive measures after removal of the child from the source of infection. Health was likely to be restored within two or three months, but the eosinophilia could continue for a year or more.

DR. CLAIRE STANTON discussed worm infestation that might be conveyed by domestic animals. She said that experience at the Royal Children's Hospital showed that worms of the roundworm group—threadworm, whipworm, ascarids and rarely hookworms—were fairly common, while those of the tapeworm group, including rat, dog and cattle tapeworms and hydatids, were less commonly found. In the roundworm group, in which ova were transferred from person to person by fæcal contamination of hands, food or water, animals played a minor part, and that was by contamination of fur and subsequent handling by a human. Occasionally, cross-infestation with canine ascarids occurred in humans, producing the disease visceral *lava migrans* described by Dr. Blanch. Young children were probably the most potent spreaders of roundworm infestation, and, with their sturdy independence of adult standards of cleanliness, might well be regarded as domestic animals.

In considering the tapeworm group, Dr. Stanton said that man and domestic animals might have been infested with the mature worm, and simple cross-infestation could have occurred (as in rat tapeworm), or some common intermediate host might have effected the transfer (for example, fleas in dog tapeworm infestation, as described by Dr. Albiston). Less commonly, man was the intermediate host, as in hydatid disease, in which dogs carried the mature worm. When prevention of infestation was considered, the most important factor was cleanliness and prevention of fæcal contamination in both roundworm and tapeworm infestations. Separation of humans and domestic animals was not feasible; but regular and frequent "de-worming" of animals was, and it could be a useful preventive measure taken in conjunction with the first method. When infestation with roundworms had occurred, the family, not merely an affected individual, should be the unit treated. Finally, a knowledge of the life cycles of the tapeworm group enabled therapy to be properly directed against the form of the parasite found in man, and made it possible to prevent later reinfestation.

DR. KATH CAMPBELL said that acquired toxacara infestation was usually said not to occur before the age of 18 months, but that she had seen a patient, aged only eight months, with that infestation.

DR. DORA BIALESTOCK said that in the United States literature the life cycle of the threadworm was said to occupy between two and three months.

"For the Whole Child."

PROFESSOR A. WEECH showed a film entitled "For the Whole Child", which had been prepared at the Children's Hospital, Cincinnati; it illustrated the "total" approach used with children who were in hospital for long periods with chronic illness, and who might also show personality disturbances. The film showed very well how medical, nursing, religious and lay personnel all worked together and all played their part in helping such children and their parents, and stressed the team work involved and the usefulness of conferences between all concerned. In that case the conferences were presided over by the child psychiatrist. The film depicted the management of a boy with a tuberculous spinal lesion, who came from a disrupted home, and who showed marked personality disturbances during his initial period in hospital.

The film commenced by emphasizing very clearly the frightening experience which entering a vast hospital must be to a sick child. It also emphasized the part played by the Episcopalian chaplain in helping the boy and mother in that particular hospital. The boy's gradual return to physical and emotional health was traced, with all the help and advantages that a modern, well-equipped and well-endowed hospital could bring under ideal conditions. Professor Weech said that only selected patients needed and received such extensive management as the film depicted, but stressed the fact that it was now realized with sick children how all facets of their illness and period of hospital stay must be given thought and consideration.

The Total Management of Cleft Lip and Palate.

A clinical demonstration of all facets in the management of congenital facial cleft was presented by DR. A. WAKEFIELD and DR. G. GUNTER, in association with MISS JOYCE ALLEY, speech therapist, and DR. A. PARKER, orthodontist.

Dr. Wakefield and Dr. Gunter showed patients demonstrating the Barrett-Brown-McDowell and Le Mesurier types of unilateral lip repair carried out in conjunction with a new method of correction of the associated nasal deformity. Other patients were shown to indicate the results of a new method of repair of bilateral lip clefts, which featured the incorporation of a triangular section of the prolabial vermilion in the repair and stressed the importance of union of muscle and mucous membrane from the lateral lip elements behind and below that triangle. The four-flap palate repair of Wardill was illustrated, and patients were shown to indicate speech results.

Various methods of repair of the less common facial clefts were demonstrated, and other patients illustrated the secondary repair of residual deformities later in life, including secondary nasal plastic operations and the Abbe operation.

The problems arising at the various stages of management of affected babies were indicated graphically in relation to the various types of cleft, and the importance of consultation between surgeon, speech therapist, orthodontist and prosthetist at all stages was stressed.

Dr. Parker showed patients and prepared models to indicate the orthodontic and prosthetic problems that arose at the various ages and in the various types of unilateral and bilateral clefts, and demonstrated some of the appliances used for their correction.

Miss Alley provided a working demonstration of methods of speech training, stressing the importance of group therapy. She indicated the types of speech disorder associated with cleft palate, and showed the proportions of those found in an assessment of 50 consecutive patients referred after palate repair. She showed patients to illustrate all the problems involved, and others to demonstrate how normal speech could be achieved.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

STRYCHNINE IN SNAKE-BITE.[1]

[From the *Australasian Medical Gazette*, May, 1891.]

DR. F. N. MANNING, medical adviser to the New South Wales Government, has favoured us with a second series of official police reports on snake-bites, also with a copy of the following circular signed by the Inspector-General of Police and sent to superintendents of all police districts by direction of the Hon. Colonial Secretary at the instance of the editor of this Journal.

"Sir,

The Colonial Secretary has directed that a full report of all instances of snake-bite coming within the knowledge of the police, together with the treatment applied and the result thereof, should be reported, in order to test the value of the remedies applied. The principal reason assigned for obtaining these reports is to arrive at right conclusions as to the efficacy of the use of strychnine by hypodermic injections in case of snake-bite, which it is asserted authoritatively has been to the present almost unfailing in apparently desperate cases; and it is considered that a full record of all instances of bites by snakes will be of great public utility."

[1] From the original in the Mitchell Library, Sydney.

Correspondence.

EPISIOTOMY.

SIR: It would seem trite to remark that an intact perineum is the desire of every obstetrician, and that it is also the primal right of every woman who lends herself to motherhood.

However, in a suburban obstetrical practice extending over more years than I care to mention, I have, with this aim always in view, had occasion to do only once an episiotomy. In this particular instance I feel that the procedure was forced upon me, in that I was denied the usual "open-ether-flooding-to-stertor" managed by the sister in charge of the case. The complete muscular relaxation afforded by this procedure has enabled me to keep intact many and many a perineum. In my opinion neither the "Trilene" box nor the ether box can with sufficient speed bring the patient to that state of anæsthesia necessary to a successful issue.

It appears that in some obstetrical hospitals the sister is precluded from administering any "open ether" anæsthetization, however momentary. This arrangement seems to me quite unnecessary from any point of view.

Now, I would like to add that I anticipate the spate of hostile colleagues averring that no obstetrical practice of any extent can avoid frequent episiotomies. I beg to differ, and write this letter to canvass the experience of other obstetricians in this matter.

Yours, etc.,

L. J. SHORTLAND.

"Otaki",
Marrickville,
New South Wales.
February 1, 1958.

PAINFUL SHOULDER.

SIR: In his excellent review of pain in the shoulder (M. J. AUSTRALIA, January 25, 1958, page 120), Dr. Conacher truly says that the basis of nearly all pains in the shoulder is aseptic inflammation. I would agree still more heartily if he had said that it is rheumatic inflammation. Until we accept this term, the key to the plurality of the syndrome eludes us, and we get lost attempting to differentiate between calcifying and non-calcifying tendinitis, subacromial bursitis, complete and incomplete tears in the rotator cuff, and bicipital teno-synovitis.

Rheumatic inflammation has a preference for synovial tissues. Here the subacromial bursa is commonly involved first, and the inflammation or degeneration which appears in tendons immediately underneath the synovial lining is secondary. Duplay called it periarthritis of the shoulder 80 years ago, meaning that the primary inflammation was not in the shoulder joint, but in the subsidiary joint or periarthros.

I agree also with Dr. Conacher that rest must be the basis of treatment for inflamed tissues. Unfortunately, however, because of our horror of stiffening of a joint, too often we allow this principle to be compromised, and we persist with active or passive movements for a shoulder which should be rested. Hugh Owen Thomas and Robert Jones laid down the principle that an inflamed joint should be

rested, and the more acute the inflammation, the more absolute the rest should be. When the inflammation has subsided, the joint may be moved.

For ten years I have immobilized acutely painful shoulders by firmly strapping the humerus to the chest wall for one to three weeks. I agree with Dr. Conacher that an abduction splint is useless; but I think more use should be made of the splint which Nature provides. The relief of pain is immediate and dramatic. When the strapping is removed, movements should be restored gradually and should not be forced. In the great majority of cases, the range of movement three weeks after removal of the strapping has been greater than it was before treatment was begun.

Yours, etc.,

MICHAEL KELLY.

410 Albert Street,
East Melbourne,
February 4, 1958.

A NEW MEDICAL SCHOOL FOR NEW SOUTH WALES.

SIR: I read with a great deal of interest the article in the issue of January 25, 1958, relating to a new medical school for New South Wales. In my view the article deals objectively and logically with the problems that are involved and will, I think, focus criticism upon the essential elements necessary to the establishment of the proposed new university. I therefore request that I may be pardoned for correcting the last paragraph, which mentions my name and associates it with an alleged mystifying statement. The article states that:

> In passing, it is a little mystifying to recall that only two months ago Mr. Sheahan was reported as having said that the Royal North Shore Hospital of Sydney was the proper site for a new pre-clinical medical school, and that the new medical school should be associated with a new university to be built on the north side of the harbour to serve the needs of the "great new city" which had developed there.

The inaccuracy of the reported statement is that I made it two months ago. The real fact is that I made the statement nearly two years ago, and it was repeated last October, and was my honest conviction from the assessment which I had made of the future needs of graduates in medicine, not only for N.S.W. but also for certain other States, State Government and Commonwealth Services and perhaps territories outside the limits of the State, such as New Guinea and the Northern Territory. Neither did I say "pre-clinical medical school", but "second medical school".

At that time the Murray Committee had not submitted its report, and I was clearly of the opinion that the University of Technology was to be limited in its activities to purely technological and scientific subjects. Since then the expert advice of the Murray Committee has been made available to the Commonwealth Government of Australia, and has been unanimously endorsed and accepted by all parties in the Commonwealth Parliament.

Any committee appointed by anybody, I am sure, would have met with opposition from certain sections of the profession. I make no apology for the appointment of a committee which every unbiased person agrees is competent to advise the Government on this matter.

There has been some criticism that the British Medical Association as an organization is not represented on the committee. That is perfectly true, and in a letter to the President of the British Medical Association of January 2, 1958, amongst other things, I said:

> Great pressure has been exerted upon me to give representation to other bodies that are interested in medical education as such, and for obvious reasons these must be declined. I am sure that you will agree with me that the viewpoint of the British Medical Association will not be lost sight of by the representatives who comprise this purely advisory committee.

I also stated in my letter that if I gave representation to any particular body, it could not be very well denied other bodies, and as it is purely advisory only, on the establishment of the second medical school to be incorporated within the new university, which is a matter not for me, but one within the jurisdiction of my colleague, the Minister for Education, and for the Government.

I would like to remove another confusion that seems to have arisen. It is being asserted that as a result of the Murray Report the Government is seizing this opportunity to transfer and build the Sydney Hospital at Kensington.

The fact is, a decision to transfer the Sydney Hospital to the Prince of Wales site at Randwick was made long before I became Minister for Health, by the Government, following advice from a permanent expert planning committee presided over by successive Premiers of the day. This was done despite, in the early stages, opposition from the Sydney Hospital Board.

The transfer of the Sydney Hospital is entirely the concern of the State Government; in fact, 200 beds are already functioning at Randwick.

I have noted in the Press that the N.S.W. Branch of the British Medical Association is immediately forming a committee to discuss undergraduate medical education in N.S.W., with particular reference to the Murray Report.

I may say that I did note with some surprise, from the particulars of the Murray Report and from the appendices therein, that the British Medical Association of N.S.W., unlike the British Medical Association, Victorian Branch, did not tender any evidence, either verbal or written, to the Murray Committee when it was deliberating upon the establishment of a second university.

I would suggest, in absolute fairness, that the British Medical Association probably lost the golden opportunity of placing its viewpoint before that committee; an opportunity which was lost not by any action of mine as Minister for Health.

I have no doubt, however, that if the British Medical Association cares to place its views before the Advisory Committee, they will duly receive the consideration of those very reputable representatives of the medical profession called upon to perform a task which, I suggest, can be helped by the thoughtful criticism that appears in your article.

Yours, etc.,

W. SHEAHAN,
Minister for Health, New South Wales.

Sydney,
February 7, 1958.

ATOPIC DERMATITIS.

SIR: I have read the article by Dr. Milder on "Atopic Dermatitis (Generalized Neurodermatitis): The Atopic Dermatitis-Asthma-Hay Fever Syndrome" with much interest, and consider it to be a very good presentation of a subject about which there is still much confusion. It is because the article is a valuable one that I wish to make some comments which I hope will be constructive in nature.

1. Even though the United States of America (and possibly Australia) are the only countries in which "a large majority of dermatologists have accepted atopic dermatitis as the most suitable term", I agree that it is the most suitable term for the form of dermatitis Dr. Milder describes.

2. I also agree with the concept expressed by Dr. Milder that the syndrome is based on a disturbance or imbalance in the equilibrium between the skin, the central nervous system and the endocrine system. I feel, however, that his reference to these as "three components of the autonomic system" might perhaps have been more happily expressed, since the skin is not autonomous, being influenced both by the nervous system and the endocrine system. Likewise, it is the sympathetic and parasympathetic components of the nervous system which are autonomic, not the central nervous system.

3. On page 75, under "Hyperventilation", Dr. Milder referred to Carryer (1946, 1952) as believing that loss of carbon dioxide in the alveolar air of the lungs leads to a deficit of alkali and this is responsible for clinical symptoms. I feel it is far more probable that the clinical symptoms are influenced by diminished oxygen tension in the tissues (this, of course, could be influenced in turn by loss of carbon dioxide in the alveolar air). This belief is based on the fact that increasing oxygen inhalation by use of an oxygen cylinder will cause at least temporary relief in itching and clinical symptoms in many cases, particularly during an exacerbation, as demonstrated to me by Scholtz in 1948, and later confirmed by me in Sydney.[1]

4. Dr. Milder quoted me (from the same paper above, page 10) as classifying the dry type of disseminated neurodermatitis (*prurigo diathésique*) as psychosomatic derma-

[1] "Proceedings of the Tenth International Congress of Dermatology", London, 1952, page 23.

titis, but omitted to add that I also included the exudative type (nummular eczematotropic dermatitis).

5. Under "Discussion", on page 75, Dr. Milder states: "There is sufficient evidence to assume that atopic dermatitis is an hereditary disease and that the predisposition is present at birth." I feel this statement should be modified to read: "Atopic dermatitis is due to a predisposition of antenatal origin to become hypersensitive or to acquire an altered capacity to react, which can be brought about by a disturbance of the equilibrium between the skin, the nervous system and the endocrine system." I say this because it is the predisposition rather than the actual dermatitis or syndrome which is handed on *in utero*. Also, it is possible, in some cases, that this predisposition and imbalance between the skin, nervous and endocrine systems might be brought about by metabolic, endocrine, food, drug or other influences on the mother affecting the child *in utero*, rather than something which is handed on through the genes (true heredity), even though this latter occurs in the majority of cases.

Yours, etc.,

J. C. BELISARIO.

"Harley",
143 Macquarie Street,
Sydney.
February 7, 1958.

SIR: I would like to thank Dr. Belisario for his most interesting and constructive criticism.

I must confess that I had the greatest difficulty in deciding which term should be used as the most suitable when I completed my last three papers on the subject. I was never entirely satisfied with either of the terms, and I thought that some further attempt should be made to design a new one. Dr. Belisario[1] said at the tenth International Congress of Dermatology, 1952, in London: "It would be of immense advantage to us all if we could use the same terms and attach the same meaning to them."

I had a long correspondence over the nomenclature with the Chief Editor of the international journal *Dermatologica* (Professor Lutz, Basel, Switzerland) in 1955-1957. He wrote to me, *inter alia*, that he hopes to find time to tackle this difficult problem and to try to design a term which would be more suitable. In his last letter to me (received in November, 1957), he says that he considers the designation "Syndrome of Besnier-Brocq" as the most suitable, because it was these two authors who worked out the most important clinical aspects of the syndrome. Meanwhile his article, *"Zum Begriff der 'Atopic Dermatitis'"*, was published in *Dermatologica*.[2] In this paper he discusses "whether it would not be more practical to distinguish this complex from the individual dermatoses which participate in it—which, of course, persist in the pure symptomatology *per se*—and give it a name of its own".

It must be admitted that after more than six decades the description of the syndrome by Besnier and Brocq is still fresh, constant and almost perfect, and impresses and fascinates every dermatologist in the world. If one reads their articles, one is delighted with their classical morphological description and masterful formulation.

I would like to comment on Dr. Belisario's remarks:

1. It is true that though Sulzberger and his co-workers' investigations helped to clarify the problem enormously, the term "atopic dermatitis" was not generally accepted in England and on the Continent. I have read extensively on the subject in different periodicals and books, and I am tempted to think that at least 60% or perhaps 65% of all dermatologists use the term "atopic dermatitis". To support this belief, I would like to mention some of the authorities on the Continent and in England. A. G. Kochs (University Skin Clinic, Frankfurt am Main, Germany), in his extensive paper *"Untersuchungen zur Konstitutions- und Erblichkeitsfrage bei der atopischen Dermatitis (Neurodermatitis)"*,[3] says that this term was widely accepted internationally (page 366). Professor J. Gaté (Lyon, France), in his article *"A propos des dermatites atopiques"*,[4] proposes that the name "atopic dermatitis" should be maintained. R. H. Meara (London) accepts the term "atopic" in his paper "Skin Reactions in Atopic Eczema".[5] In the official programme of the eleventh International Congress of Dermatology, Stockholm, 1957, this term was put in first place of the symposium "Atopic Dermatitis (Prurigo Besnier-Neurodermitis)".

2. I agree with Dr. Belisario that neither the skin nor the central nervous system is autonomic, and my reference to the three components of the autonomous system has to be modified, to read: "The three components—autonomic nervous system, skin and endocrine system—are functionally inseparable, operate correlatively in advanced fœtal life and influence each other mutually."

3. With regard to "Hyperventilation", it is difficult to oppose Dr. Belisario's belief, and maybe he is quite right. I was inclined to assume that the loss of carbon dioxide in the alveolar air of the lungs leads to a deficit of alkali, and this is or may be responsible for clinical symptoms, as it was discovered and stated by Carryer. I think I am justified to quote Claude Bernard, who in his "Introduction to Experimental Medicine" said: "When two physiologists or doctors quarrel, each to maintain his own ideas and theories, in the midst of their contradictory arguments, only one thing is absolutely certain; that both theories are insufficient and neither of them corresponds to the truth. . . . We really know very little, and we are all fallible when facing the immense difficulties presented by investigation of natural phenomena."

4. I have omitted to mention the exudative type of disseminated neurodermatitis (nummular eczematotropic dermatitis) for the simple reason that the disorder I have described is the *prurigo Besnier* or *prurigo diathésique*.

5. We may be different in formulation of our ideas, but I am very glad to see that Dr. Belisario has the same ideas on the subject and is almost in full agreement with my views. I take the liberty to say that my statements under "Prenatal Influences" (page 73) and "Discussion" (page 75) are almost congruent to Dr. Belisario's modified concept. I fully agree with him, that "the predisposition is handed on *in utero*", and this predisposition is present at birth. It appears to be a question of time and conditions when this latent predisposition becomes manifest and when the first signs occur. Dr. Belisario is going further in assuming the possibility, in some cases, that the predisposition and imbalance between the skin, nervous and endocrine systems might be brought about by different influences on the mother, affecting the child *in utero*, a view to which I subscribe.

Yours, etc.,

EMIL MILDER.

"Dorchester House",
149 Macquarie Street,
Sydney.
February 7, 1958.

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[1] "Proceedings of the Tenth International Congress of Dermatology", London, 1952, page 25.

[2] *Dermatologica*, 1957, 115: 586.

[3] *Arch. f. Dermat. u. Syph.*, 1951, 193: 363.

[4] *Dermatologica*, 1957, 115: 223.

[5] *Brit. J. Dermat.*, 1955, 67: 60.

SOME STATISTICAL OBSERVATIONS ON FLUORIDATION TRIALS.

SIR: The paper of P. R. N. Sutton and A. P. B. Amies in THE MEDICAL JOURNAL OF AUSTRALIA, February 1, 1958, page 139, complains that "much confusion of thought clouds the issue" of certain aspects of fluoridation. In view of the recent renewed endorsement by the National Health and Medical Research Council in Australia (May 23-24, 1957) and the World Health Organization (Press Release WHO/45, September 4, 1957), the comments in their paper in no way serve to enlighten the "casual reader".

The "uncertainty" about fluoridation is not reflected by the American Medical Association reevaluation of fluoridation, which was re-endorsed, as Sutton and Amies state, at the last annual meeting,[1] and the reason that fluoridation is not yet in operation in New York is not that it may be a hazard to health or that it lacks efficacy, but that the unreasonable and unsubstantiated antagonism of Mr. Nesin and his colleague, Mr. Ford, the Commissioner of the Department of Water Supply, Gas and Electricity, New York, prevailed. These two isolated statements are indeed a weak introduction to the paper. However, as the paper proceeds, it is seen that they are completely irrelevant to the main points of the authors' criticism, for Sutton and Amies devote the total discussion of their paper to the efficacy of fluoridation, which is not even mentioned as one of the factors causing confusion.

1. It is claimed that the "proposals to fluoridate domestic water supplies are almost entirely based" on the Grand Rapids, Michigan, Newburgh, New York, and other trials. Historically, the proposals to fluoridate domestic water supplies are based on the evidence that the continual use of

[1] J.A.M.A., 1957, 165: 2090 (December 21).

drinking water naturally containing adequate amounts of fluoride will reduce the dental caries experience of those persons who have used the water throughout life.[1]

These epidemiologic findings have been substantiated and confirmed by many investigators, and are no longer open to any reasonable doubt. Furthermore, to suggest that mechanically added fluoride does not produce the same effects as an identical concentration of natural fluoride is to adopt a scientifically untenable position completely unsupported by evidence.[2]

2. The X-ray examinations at Newburgh and Kingston began in 1949-1950, five years after the commencement of the study, not eight, as Sutton and Amies state.[3] They conveniently omit the results of the X-ray examination where the films from both cities were randomized, so that the examiners were not aware of their origin. The results of the X-ray study of the approximal surfaces of the teeth of the children of both cities showed that fluoridation had not only a quantitative effect, but also a qualitative one, and substantiated the clinical findings which Sutton and Amies claim to be fraught with bias and subjective error.

3. When the DMF figure is criticized as being inaccurate because of subjective variation, different examiners, standards of assessment and the time interval between examinations, it must be remembered that two of the components which make up this figure are subject to objective assessment, and these are the numbers of missing teeth and of filled teeth. When these are compared in the study and control areas (Newburgh and Kingston, New York), the proportion of first molars missing was eight times as great among the six to nine year old Kingston (fluoride-free) children as among the Newburgh children of the same age group. *This is not the result of a difference in the amount* of dental care, which was comparable in 94% of the children, as shown by the rate of fillings provided (a finding based on objective assessment), but, on the basis of the combined X-ray and clinical examination, is the result of the protective action of fluoride.

These results are in agreement with those of the eleventh year report of the Grand Rapids Survey.[4] Furthermore, the comparison of the Grand Rapids findings with those of Aurora, Illinois, a natural fluoride area, show that the same benefits are being received from the use of artificially fluoridated water as from a water containing the same concentration of natural fluoride.[5]

If the integrity of the workers is not to be questioned, which fact Sutton and Amies concede, then the coincidence of these findings does not need the application of the statistical methods to eliminate chance.

The evidence which supports the efficacy of fluoridation is overwhelming, a point well made in the excellent editorial (page 149) on the "Fluoridation of Public Water Supplies", but it is regrettable that the criticism of Sutton and Amies is euphemistically placed on "the detached scientific level".

Yours, etc.,

NOEL D. MARTIN,
Associate Professor of
Preventive Dentistry.

Faculty of Dentistry,
University of Sydney,
Sydney.
February 7, 1958.

CREMATION CERTIFICATES.

SIR: In order to prevent distress to the relatives of certain deceased persons, I feel the following facts should be brought to the attention of all medical practitioners. When practitioners are requested to give cremation certificates, they should be aware that the regulations governing cremations expressly require that the practitioner shall have attended a deceased person prior to his death. A medical referee, therefore, cannot give permission for cremation if the attendant doctor has not complied with the above conditions, even although, quite regularly, he may have issued a death certificate.

Twelve months ago, in those instances in which the attendant practitioner had issued a Form B and had not attended the deceased prior to her death, I, in company with other referees, requested him/her to report the death to the coroner, who, usually without a post-mortem of the deceased, issued a Form E giving permission for the cremation. Lately, however, at least two city coroners have refused to issue this Form E.

In order that a cremation should take place, it is now apparently necessary, in the instances mentioned above, for the deceased's relatives to undergo the expense of having a private autopsy performed. Of course they may, if they so desire, have a burial.

All this could be averted, in my opinion, if the coroners returned to the old system. I do not care to enter into a discussion into either the merits or demerits of their recent actions.

Would, therefore, all medical practitioners who are asked to sign cremation certificates for persons whom they have not attended prior to their death refuse to sign them and report the case direct to the coroner. Such action will prevent unnecessary distress to the relatives of the deceased, and much less trouble to themselves.

Yours, etc.,

CARL H. JAEDE,
Medical Referee, Eastern Suburbs Crematorium.

4 Robey Street,
Mascot,
New South Wales.
February 4, 1958.

Obituary.

LESLIE THOMAS ALLSOP.

WE are indebted to Dr. J. B. Whittemore for the following appreciation of the late Dr. Leslie Thomas Allsop.

When Leslie Thomas Allsop died on October 27, 1957, the St. George district of Sydney lost one of its outstanding personalities. Born at Randwick in 1890, and educated at Sydney Grammar School, he took up pharmacy for a few years, but heeding the call to the wider fields of medicine, he went back to school to matriculate, this time choosing the Christian Brothers' College, Waverley. Graduating M.B., Ch.M. in 1916, he immediately enlisted in the Australian Imperial Force, afterwards distinguishing himself with the 39th Battalion and gaining the Military Cross as a field decoration.

After some post-graduate work in London, he returned to Australia to settle down at Abermain on the northern coalfields, where he married and was engaged in a busy general practice until 1935. He then moved to Brighton-le-Sands and later to Rockdale. At this time suburban practice was still sluggishly plodding through the financial depression of the 1930's, but soon to be whirled into the hurricane of activity of the war years, which took so much toll of the health of the civilian practitioners. This was a unique period in which, besides looking after the practices of those engaged on active service, we were often called upon suddenly to take over also the patients of a neighbour stricken down with illness; it brought about a spirit of cooperation between the doctors not experienced before or since. Thus I secured an insight into Les Allsop's skill as a practitioner. He was one of the "vanishing race" of family doctors who, by hard experience, had developed sufficient sang-froid to meet with equanimity—and before the days of blood banks and antibiotics—any emergency, whether *placenta prævia*, ruptured viscus or the like. His skill in diagnosis was outstanding, and he was a quick and useful surgeon, miraculously maintaining his popularity at the hospitals even though he never carried a watch.

Intensely religious, he was a great student of history and to a lesser degree of the other arts and humanities, and because of his early dual type of education he was better fitted than most to bring the right sort of consolation to the bedside, especially of a dying patient. Ill-health over the last few years caused him to curtail his practice; but, blessed always with a very happy family life, he was watching with never-flagging interest, even though mostly from the sidelines, the progress of the new specialized

[1] "The Fluoridation of Domestic Water Supplies as a Means of Controlling Dental Caries" Report of the United Kingdom Mission, London, February-April, 1952, page 21.

[2] Martin, N. D. (1957), M. J. AUSTRALIA, 11: 884 (December 14).

[3] Ast, D. B., Bushel, A., Wachs, B., and Chase, H. C. (1956), *J. Am. Dent. A.*, 50: 680 (June).

[4] Arnold, F. A., junior (1957), *Am. J. Pub. Health*, 47: 639 (May).

[5] Arnold, F. A., junior, Dean, H. T., and Knutson, J. W. (1953), *Pub. Health Rep.*, 68: 141 (February).

medicine of the post-war years, in which a son and son-in-law are playing varying parts, and he was still in light harness when he died.

DR. C. ANGUS WILES writes: I first met the late Dr. Leslie Allsop early in 1933, when the depression years were, I think, at their worst. At this time I and many others were wondering how to provide for our families. He invited me to become his assistant at Abermain, and I was happy to do so. I soon found that he had a large practice in this coal-mining area, and work was constant enough to keep one's mind from worries. He had what appeared to me and others a somewhat fierce look, but I soon found out that this was merely a façade that hid a kindly nature. His patients still talk about him, and the number of Leslies called after him is an indication of his popularity. He knew how to handle the individual members of a mining community and I found his advice a great help. At times he could be tough when the circumstances warranted, and I well remember an incident when a husband and wife asked me to alter a certificate from influenza to mumps. When I refused they were indignant, and said that Dr. Allsop would do it. I explained the matter to him, and when he had finished with them they left with tears and apologies, saying that they had no idea of what they had been asking us to do in order that they could make a claim on an insurance company.

Allsop served as a medical officer in the war of 1914-1918, and started practice in Abermain on his return. He was a very entertaining person, and I enjoyed his story of how his orderly set up his dressing station one night and he had an uneasy feeling when he inspected it. With much grumbling, his orderly moved it to another site. In the morning a gaping shell hole was all that remained of the first site. The orderly looked at it, and said: "Cripes, Doc., any time you get that feeling let me know, and I will shift everything!"

Allsop was a keen surgeon, and I owe much to him and to Dr. Sam Gardner, of Newcastle, for their help and encouragement. In those days a blood transfusion took all day, and one had to become proficient in surgery, as there was no one else to do it. I was amazed at the faith the patients had in their own particular choice of doctor, and embarrassed by the frequent query when medical treatment had not resulted in a cure in a day or so: "Why don't you operate?" After I had been with Allsop for 12 months, he invited me to join him in partnership. He stayed on for another couple of years, and then went to Rockdale, where he practised until just before his death. His elder son is following in his footsteps. The older members of the community still like to talk about him, and I am happy to listen.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

WEEK-END COURSES FOR GENERAL PRACTITIONERS, MARCH, 1958.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that the following week-end courses for general practitioners will be held during March, 1958.

Course in Neurology.

The following course in neurology will be held in the Students' Lecture Room, Royal North Shore Hospital, Crow's Nest, on Saturday and Sunday, March 15 and 16, 1958, under the supervision of Dr. George Selby.

Saturday, March 15: 2 p.m., "Modern Trends in the Management of Acute Head Injuries", Mr. S. M. Morson; 2.45 p.m., "Post-Concussional Syndromes", Dr. J. W. Lance; 3.45 p.m., "Diagnosis and Treatment of Myasthenia Gravis", Dr. Eric Susman, with a film lent by courtesy of the American Myasthenia Gravis Foundation; 4.45 p.m., "Epilepsy of Late Onset", Dr. L. S. Basser.

Sunday, March 16: 9.45 a.m., "Recent Advances in Neurosurgery", Mr. John M. F. Grant; 10.30 a.m., "Disseminated Sclerosis", Dr. K. B. Noad; 11.30 a.m., demonstration of clinical cases; 2 p.m., "Progress in the Management of Cerebral Vascular Disease", Dr. W. J. Burke; 2.45 p.m., "Neurological Causes of Failing Vision", Dr. J. L. Allsop; 3.45 p.m., "The Diagnosis of Organic Cerebral Disease in Childhood", Dr. L. R. Rail; 4.30 p.m., "Is it Organic or Functional?", Dr. George Selby.

The fee for attendance at this course is £3 3s.

Course in Electrocardiography.

The following course in electrocardiography will be held in the Maitland Lecture Theatre, Sydney Hospital, on Saturday and Sunday, March 22 and 23, 1958, under the supervision of Dr. G. E. Bauer.

Saturday, March 22: 9.30 a.m., introductory remarks, Dr. K. B. Noad; 9.45 a.m., "Principles of Electrocardiography", Dr. B. R. M. Hurt; 10.30 a.m., "Arrhythmias", Dr. E. J. Halliday; 11.30 a.m., "Electrocardiography in Valvular Heart Disease", Dr. B. C. Sinclair-Smith; 12.15 p.m., "Electrocardiography in Hypertensive Heart Disease", Dr. J. Raftos; 2 p.m., symposium on electrocardiography in ischæmic heart disease; speakers, Dr. R. B. Blacket, Dr. F. L. Ritchie, Dr. W. A. Seldon and Dr. J. Sevier; 3.45 p.m., practical session in electrocardiography.

Sunday, March 23: 10 a.m., "Electrocardiogram in Childhood", Dr. Douglas Stuckey; 10.45 a.m., "Electrocardiogram in Electrolyte Disturbances and Other Non-Cardiac Conditions", Dr. G. E. Bauer; 11.45 a.m., electrocardiographic quiz session; speakers, Dr. G. E. Bauer, Dr. R. B. Blacket, Dr. F. L. Ritchie and Dr. W. A. Seldon.

The fee for attendance at this course is £3 3s.

WEEK-END COURSES FOR GENERAL PRACTITIONERS, APRIL, 1958.

Further details will be available shortly concerning the following week-end courses, to be held in April, 1958.

Course in Radiological Diagnosis and Techniques.

A course in radiological diagnosis and techniques, under the supervision of Dr. Alan R. Colwell, will be held in the Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital, Camperdown, from 9.30 a.m. to 5 p.m., on Saturday, April 12, and from 10 a.m. to 1 p.m. on Sunday, April 13, 1958. The fee for attendance is £3 3s.

Course in Occupational Medicine.

A course in occupational medicine, under the supervision of Dr. Gordon Smith, will be held on Saturday, April 19, from 9.30 a.m. to 5 p.m., in the Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital, Camperdown, and on Sunday, April 20, from 9.30 a.m. to 1 p.m., at the School of Public Health and Tropical Medicine, University of Sydney. The fee for attendance is £3 3s.

METHOD OF ENROLMENT.

Those wishing to attend any of the above-mentioned courses should make written application, enclosing remittance, to the Course Secretary, The Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney, at an early date. Telephones: BU 4497-8.

FINAL EXAMINATIONS FOR FELLOWSHIP OF ROYAL AUSTRALASIAN COLLEGE OF SURGEONS.

Course at Sydney.

A COURSE OF INSTRUCTION for candidates for the final examinations for Fellowship of the Royal Australasian College of Surgeons has been organized by the New South Wales State Committee of the Royal Australasian College of Surgeons in conjunction with the Post-Graduate Committee in Medicine in the University of Sydney. The course will be held from March 17 to April 25, 1958, full time, under the direction of the Professor of Surgery in the University of Sydney, Professor John Loewenthal. The headquarters for candidates will be the Harold Dew Room, New Medical School, University of Sydney. Lectures, demonstrations and clinical teaching will be conducted at each of the four teaching hospitals. Candidates must have passed the primary examination of one of the Royal Colleges.

The fee for attendance is 20 guineas. The course is limited, and early application to the Course Secretary, Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney, is essential. Telephones: BU 4497-8. Telegraphic address: "Postgrad, Sydney."

The Royal Australasian College of Physicians.

EXAMINATION FOR MEMBERSHIP.

INTENDING CANDIDATES for the examination for membership of *The Royal Australasian College of Physicians*, to be held in April-May, 1958, are reminded that applications for this examination close on Friday, March 21, 1958. The written examination will take place in capital cities where candidates are offering on Friday, April 18, 1958. The clinical examination will take place in Sydney on or about Monday, May 26, 1958. Only those candidates whose answers in the written examination have attained a satisfactory standard will be asked by the Censor-in-Chief to proceed to the clinical examination. Application forms may be obtained from the Honorary Secretary, 145 Macquarie Street, Sydney.

Medical Practice.

REPRIMAND OF MEDICAL PRACTITIONER.

THE following notice appeared in the *Commonwealth of Australia Gazette*, No. 6, of January 30, 1958.

NATIONAL HEALTH ACT, 1953-1956.

Notice in Pursuance of Section 134A.

Notice is hereby given that, the Medical Services Committee of Inquiry for the State of New South Wales, after investigation, having reported on the second day of December, 1957, concerning the conduct of Ralph Harold Ludowici, of Wee Waa, a medical practitioner, in relation to his provision of medical services under Part IV of the National Health Act, 1953-1956, I, Donald Alastair Cameron, Minister of State for Health, did on the ninth day of January, 1958, reprimand the said Ralph Harold Ludowici.

Dated this ninth day of January, 1958.

DONALD A. CAMERON,
Minister of State for Health.

The following notice is published in the *Commonwealth of Australia Gazette*, No. 8, of February 6, 1958.

NATIONAL HEALTH ACT, 1953-1957.

Notice in Pursuance of Section 134A.

Notice is hereby given that, the Medical Services Committee of Inquiry for the State of New South Wales, after investigation, having reported on the seventeenth day of December, 1957, concerning the conduct of Norman William Michael Hughes, of 55 Longueville Road, Lane Cove, a medical practitioner, in relation to his provision of medical services under Part IV of the National Health Act, 1953-1957, I, Donald Alastair Cameron, Minister of State for Health, did on the 20th day of January, 1958, reprimand the said Norman William Michael Hughes.

Dated this 20th day of January, 1958.

DONALD A. CAMERON,
Minister of State for Health.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

Visiting Professor of Pharmacology.

THE Senate of the University of Sydney has appointed Professor J. H. Gaddum, F.R.S., as the third Visiting Professor of Pharmacology. Professor Gaddum is Professor of Pharmacology at the University of Edinburgh. He is the author of "Pharmacology", and is a leader in the study of

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JANUARY 25, 1958.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	2(1)	2(1)	6(1)	..	..	..	..	..	10
Amoebiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	3	..	2(1)	..	..	..	..	..	5
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	1	..	..	..	..	..	..	..	1
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	1(1)	..	..	..	..	..	..	1
Dengue	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile)	4	11(11)	1(1)	..	1	7	1	..	25
Diphtheria	..	..	..	..	..	..	..	..	..
Dysentery (Bacillary)	..	3(2)	1	..	..	2	..	..	6
Encephalitis	5(4)	..	..	1(1)	..	..	..	..	6
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	2(2)	..	..	..	..	..	..	2
Infective Hepatitis	26(13)	16(12)	5(1)	3(3)	9(2)	..	..	1	60
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	2	..	2
Leptospirosis	..	..	1	..	..	..	..	..	1
Malaria	..	1(1)	..	..	..	..	..	..	1
Meningococcal Infection	..	2(2)	1(1)	..	..	..	..	..	3
Ophthalmia	..	..	..	..	4	..	..	..	4
Ornithosis	..	..	..	1(1)	..	..	..	..	1
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	..	..	1(1)	..	..	..	..	1
Puerperal Fever	..	1	..	..	..	..	..	..	1
Rubella	..	31(26)	..	5(5)	12(1)	..	..	..	48
Salmonella Infection	..	..	..	1(1)	..	..	..	..	1
Scarlet Fever	6(3)	3(3)	4(3)	2	2(1)	1	..	..	18
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	1	..	..	..	..	1
Trachoma	..	..	..	..	1	..	..	..	1
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	43(27)	13(12)	21(14)	3(3)	8(4)	2	..	..	90
Typhoid Fever	1	1	..	..	..	..	..	..	2
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

pharmacologically active substances in tissue extracts. Professor Gaddum will leave for Australia about the middle of April, and will spend approximately two months in Sydney. During his stay in Australia he will lecture in Sydney and other capital cities, and will visit the Australian National University in Canberra.

The Senate of the University of Sydney wishes to acknowledge the assistance of the pharmaceutical manufacturers of Australia, by which a fund has been established to invite a guest professor in this subject each year.

Notice.

NEW SOUTH WALES SPORTS MEDICINE ASSOCIATION.

A MEETING of the New South Wales Sports Medicine Association will be held at 8 p.m. on Wednesday, March 5, 1958, on the first floor, Rugby Union House, Crane Place, off 31A Pitt Street (Circular Quay end), Sydney. Dr. H. W. Thurlow will speak on "Modern Concepts in Football Training", and Mr. L. Cotton will then read a paper entitled "Optimum Performance: Methods of Achievement". Further information concerning this Association may be obtained from the Secretary, Dr. B. Towers, 211 Willarong Road, Caringbah. Telephone: LB 7586.

Corrigendum.

WE are informed that an error has occurred in the article by Professor Samuel Hatfield, entitled "The Modern Medical School", which appeared under the general heading "Medical Education" in the issue of February 8, 1958. In the section headed "The Modern Medical College" on page 194, in the third paragraph, a line has been left out. This paragraph should read as follows:

> The use of the term "pre-clinical" is deprecated at the School of Hospital Administration. It places emphasis on the clinical sciences. It may be argued that the basic medical sciences are of equal importance. The basic medical sciences must not be confused with the basic sciences, which are "pre-medical" and taught in the faculty of science.

We apologize to Professor Hatfield for this omission.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Ryan, Douglas, M.R.C.S., L.R.C.P. (London), 1944, Cater Street, Coledale, New South Wales.

Saave, Jan Jerzy, M.D., 1948 (Univ. Marburg) (registered in accordance with the provisions of Section 17 (2B) of the *Medical Practitioners Act*, 1938-1957), Department of Public Health, Rabaul, New Britain.

Potts, John Gilroy, M.B., B.S., 1956 (Univ. Sydney), 86 Northbourne Avenue, Braddon, Australian Capital Territory.

Moriarty, John Gerard, M.B., B.S., 1957 (Univ. Sydney), Callan Park Mental Hospital, Rozelle, New South Wales.

Burke, Claire Agnes, M.B., B.S., 1956 (Univ. Sydney), 133 Macleay Street, Potts Point, New South Wales.

Wayland, Jill Pamela, M.B., B.S., 1956 (Univ. Sydney), 59 The Avenue, Hurstville, New South Wales.

Powrie, Robert Malcolm, M.B., B.S., 1956 (Univ. Adelaide), Cabramurra, via Cooma, New South Wales.

Sgouromallis, John, M.B., B.S., 1955 (Univ. Sydney), 258 Concord Road, Concord West, New South Wales.

Wilcox, Eva, M.D., 1949 (Univ. Bonn) (licensed under Section 21 (c) of the *Medical Practitioners Act*, 1938-1957), Child Guidance Centre, Camperdown School Building, Parramatta Road, Camperdown, New South Wales.

Deaths.

THE following deaths have been announced:

ROSENFIELD.—Reuben Laman Rosenfield, on February 6, 1958, at East Malvern, Victoria.

FRIEDLANDER.—Erich Martin Caesar Friedlander, on February 9, 1958, at Roseville, New South Wales.

Diary for the Month.

FEB. 25.—New South Wales Branch, B.M.A.: Hospitals Committee.
FEB. 26.—Victorian Branch, B.M.A.: Council Meeting.
FEB. 27.—South Australian Branch, B.M.A.: Scientific Meeting.
FEB. 28.—Queensland Branch, B.M.A.: Council Meeting.
MARCH 4.—New South Wales Branch, B.M.A.: Organization and Science Committee.
MARCH 5.—Western Australian Branch, B.M.A.: Branch Council.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales.

Queensland Branch (Honorary Secretary, 88 L'Estrange Terrace, Kelvin Grove, Brisbane, W.1): All applicants for Queensland State Government Insurance Office positions are advised to communicate with the Honorary Secretary of the Branch before accepting posts.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in Australia can become subscribers to the Journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £5 *per annum* within Australia and the British Commonwealth of Nations, and £6 *per annum* within America and foreign countries, payable in advance.